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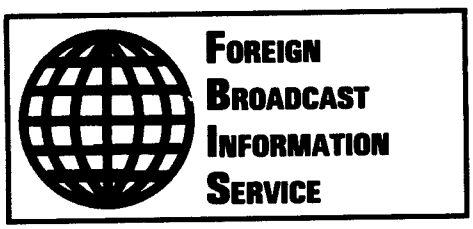

JPRS Report

Environmental Issues

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IAEA To Ensure Safety at E. European, CIS Nuclear Plants

AU1502152692 Paris AFP in English 1442 GMT 15 Feb 92

[Text] Vienna, Feb 15 (AFP)—The International Atomic Energy Agency (IAEA) announced Saturday [15 February] that it has reached agreement with the Commonwealth of Independent States (CIS) and two eastern European countries on tightening safety at four high-risk nuclear power stations.

Safety measures agreed at a two-day meeting here between experts from the IAEA, the CIS, Czechoslovakia, Bulgaria and the European Community would be taken soon at plants at Kozloduy, in Bulgaria, Bohunice, in Czechoslovakia, and at Kola and Novovoronezh in Russia, the IAEA said in a statement.

The measures were prepared on the basis of an IAEA report on 10 Soviet-built VVER-440/230 reactors seen as potentially dangerous, of which four were at Kozloduy, two at Bohunice and the four others at the Russian plants.

Local officials were involved in preparing the safety measures, the IAEA said, adding that priority would be given to "improvement of the reliability of the material and its functioning."

The plants had shown "major faults," notably "a lack of concrete protection sufficient to contain radioactivity in the case of leaks and the lack of a fall-back system in the event of an accident," the IAEA said.

There was also a "danger of fissures at the reactor core and inadequate protection against fire," the IAEA said.

Czechoslovak authorities were said to have prepared measures "to enable the reactors at Bohunice to continue operating until 1995," after which time "the functioning of the reactors will require work which will be undertaken so long as the cost does not exceed 400 million dollars."

In Bulgaria "a substantial safety improvement programme" has been started at Kozloduy with financial assistance from the European Community with a view to maintaining the operation of the reactors until 1995 or 1996.

Operation beyond that date will depend on the results of an enquiry to be completed by the end of this year, the IAEA said.

At the Russian plants, "a safety improvement programme is in progress and it is envisaged that these plants will operate for the 10 coming years with regular checks made by the competent authorities."

Bulgaria, Czechoslovakia and Russia have asked the IAEA to maintain their safety study programme, the agency said.

REGIONAL AFFAIRS

Drought in Southern Africa 'Most Devastating' in Century

MB1402145792 Johannesburg THE STAR in English 14 Feb 92 p 1

[Report by Hans-Peter Bakker: "Drought Decimating Southern Africa"]

[Text] Virtually the entire southern African region is reeling in what could become the most devastating drought in a century.

From Tanzania in the north to the Cape Province in the South, millions of people could face famine as crops are laid to waste and watercourses dry up.

The drought grips much of South Africa, southern Namibia and Botswana, Swaziland, Lesotho, all of Zimbabwe, southern Zambia and much of Malawi, Mozambique and Tanzania.

In former years of shortages, South Africa was often able to provide staple foods to hard-hit countries in the region, but 1992/93 threatens to be one of the worst in recorded history as South Africa faces the prospect of having to import about 3 million [metric] tons of maize for its own consumption.

To make matters worse, the United Nations World Food Programme [WFP] predicts serious congestion on the region's transport system. Most provisions will have to be imported via Durban.

And, said a WFP spokesman, traditional donor countries are already far stretched to provide food aid to war-torn Ethiopia and Somalia and in flood-ravaged Bangladesh, and would be hard pressed to provide the short-term requirements in southern Africa.

The spokesman said it was feared that many people in the region would die before the end of the year. "Even if we get the food, it will be logistically impossible to get it to the areas where it is urgently needed."

Thousands of farmworkers and villagers are facing bleak prospects, and already crowded cities will swell with millions seeking means to survive—with unemployment and crime rising as a result.

The drought also promises to play havoc with the region's hopes of economic and political stability.

In South Africa, hopes of an upturn in the economy are fading and dreams of more favourable trade balance will be dashed as the country imports foods to survive.

Zimbabwe is one of the worst-hit countries in area, with estimates of more than a million tons of maize needed to make up the shortfall and with more than 2 million people already having applied for emergency food aid and another 4 million more expected to make the appeal soon.

In Mozambique, the drought A?omises to take a high human toll with many thousands of people already displaced by the war, and the cities holding little promise of survival for the stricken rural population.

Regie Mugwara, sector coordinator for food security in the Southern African Development Coordination Conference region, is worried that the message of the seriousness of the situation is not getting through to policy-makers in the area.

He said his unit was "quantifying" the extent of the drought to enable countries in need to apply for donor assistance. "But there is a danger that everyone will come asking for food aid at the same time."

SACIM States Back Sustainable Utilization in Wildlife Management

MB1402140792 Johannesburg SAPA in English 1340 GMT 14 Feb 92

[Text] Windhoek, Feb 14 (SAPA)—The five member states of the Southern African Centre for Ivory Marketing (SACIM) believe that trade mechanisms can be developed that will not encourage illegal trade in ivory in other countries, says Namibia's permanent secretary of wildlife, conservation and tourism.

In a press statement on Friday, Mr. Hanno Rumpf said the SACIM board met ministers from Botswana, Malawi, Namibia, Zambia and Zimbabwe to discuss the forthcoming conference of the Convention on International Trade in Endangered Species (CITES) in Kyoto, Japan in March." The SACIM states agreed to treat the conference as a watershed meeting in the current debate on sustainable utilisation as a wildlife management principle," Mr. Rumpf said, adding they had submitted a number of draft resolutions seeking to establish this principle in the context of CITES.

The five states have also submitted proposals to remove key species, including elephant, from CITES Appendix I, a category that outlaws international trade in the species listed, to Appendix II.

"The SACIM countries confirm that this approach will not compromise the efforts made by other countries in combatting illegal trade," Mr. Rumpf said.

"Indeed every precaution will be taken to ensure that the SACIM countries' own legal trade will not undermine other nations' law enforcement efforts.

"The SACIM states therefore remain united in their belief that trade mechanisms can be developed that do not lend themselves to encouraging illegal trade.

"But recognising the need for their people to assist in the conservation of wildlife, the SACIM countries also remain united in their belief that sustainable utilisation is the only way forward," Mr. Rumpf concluded.

Involvement of Troops in Ivory Smuggling Alleged

MB2402083692 Johannesburg South African Broadcasting Corporation Network in English 0500 GMT 24 Feb 92

[Text] The London-based Environmental Investigation Agency alleges that troops in South Africa and Zimbabwe are involved in large-scale ivory poaching and smuggling.

The organization says in a report that it sent representatives pretending to be ivory traders to South Africa and Zimbabwe to obtain proof of ivory smuggling. It said that five tonnes of ivory had been transported to South Africa and Swaziland by air in 1990. It expressed the hope that the findings would undermine the attempts by South Africa and Zimbabwe to get the ban on ivory trade lifted at a meeting to begin in Japan in a week's time.

Botswana, Malawi, and Namibia, have joined South Africa and Zimbabwe in applying to the UN Convention on International Trade in Endangered Species to have the ban lifted.

ANGOLA

Forestry Development Official Outlines Environmental Priorities

92WN0267A Luanda JORNAL DE ANGOLA in Portuguese 16 Jan 92 p 2

[Report on interview with Paulo Augusto Geraldo Vicente, director of the Forestry Development Institute, by Antonio Pimenta; place and date not given: "Fauna, Flora, and Environment Begin Anew"]

[Text] With a total surface area of 13,400,000 hectares of plants, of which 8,700,000 hectares are productive (producers of wood), Angola possesses wood reserves estimated at about 876 cubic meters.

Despite this fact, the country is experiencing considerable difficulty in the supply of this product and cabinetmakers in the local areas are hard put to keep their doors open.

The reason for this situation is the fact that the exploitation of wood, which could be a good source of foreign exchange for our country, is not being carried out to any great extent due to the war which we have been experiencing until recently and the lack of proper equipment for this type of work.

The companies which held the monopoly for the exploitation of wood, all state-owned, failed due to a series of material difficulties and even one organizational difficulty.

The Forestry Development Institute [IDF] is the organization responsible for supporting and promoting the development of plants, animals, and environment, in fact, the preservation of nature itself in its broadest aspects.

In an exclusive interwiew with JORNAL DE ANGOLA, Paulo Augusto Geraldo Vicente, national director of IDF, said that due to the new market economy policy being currently in effect in the country the state-owned forestry-exploitation companies, which until now have not been profitable, will be converted into privately owned enterprises.

He advocated the need to stimulate private initiative in order to induce domestic entrepreneurs, individually or in groups, to make forestry exploitation more dynamic, that activity being, in his opinion, an important resource which could contribute to national reconstruction, so long as it is carried out rationally.

Following this line of thought, he asserted that anyone who wishes to pursue forestry exploitation must have a certain amount of special talent and at least minimum conditions under which to operate, since forestry exploitation, both natural and artificial, must be carried out in a rational manner and those who become involved must have a certain amount of knowledge with regard to the forestry sphere.

He stated that a number of companies which are exploiting wood in some of the country's provinces do not have adequate equipment for profitable exploitation.

Contrary to what many people think, our wood resources have never been at risk. Throughout the years there has never been any danger of decimating our animal life inasmuch as forestry exploitation has always been in the area of 100 cubic meters annually, according to Vicente.

With regard to forestry exploitation, those interested should submit a request to the Ministry of Agriculture and Rural Development [MADR] accompanied by a sketch pinpointing the area and region to be exploited.

Following this procedure, IDF officials responsible for the areas in question will make a feasibility study to determine whether or not the desired exploitation will be carried out.

He stated that in cases where authorization is granted, the interested parties will pay an annual license fee for the exploitation in question, depending on the amount of wood to be exploited.

"In addition to this," he continued, "the entrepreneurs are obliged to adhere strictly to forestry regulations which stipulate that any tree cut must have a specific diameter and that three trees must be planted for every tree cut down."

Questioned about the procedures used in exploiting the forestry products and the countries with which Angola has been doing this type of business, the IDF director said that "we have been exporting these products essentially to Cuba and Bulgaria which in exchange have been

furnishing us technical assistance. We are currently not exporting any wood," he said, without explaining why.

Without alluding to the methods used by the Cubans in exploiting wood products, the IDF director refrained from giving an explanation in this regard, stating simply that certain errors had been committed by that group in the forestation procedures.

In reference to trees of foreign origin (eucalyptus and pine), having been introduced in Benguela, Malanje, and Huambo for the purpose of supplying the requirements of the Benguela Railroad [CFB] not only for fuel for the wood-burning locomotives but also for crossties for the rails themselves, and further supplying the raw material for the Catumbela pulp mill, the director said that the IDF is currently making every effort to preserve these trees which might otherwise face extinction from forest fires and the indiscriminate felling of the trees by certain individuals.

Reforestation Campaign Giving Satisfactory Results

In view of the problem of erosion facing parts of the country's southern area, the IDF has initiated a reforestation campaign designed to deter this phenomenon, normalize the water system, and introduce species which might serve to supply the local people with fruit.

In these campaigns in which the local people took part, an attempt was made to introduce a number of species of trees which would help protect the cotton crops from wind erosion.

Notwithstanding the positive results achieved through this procedure, the IDF plans to modify its modus operandi, creating huge nurseries in these provinces for planting large quantities of utilitarian and fruit trees by the peasants themselves. This change is aimed essentially at safeguarding the peasants' crops, protecting the soil in the cultivated areas, improving the pasture lands, and systematizing the irrigation channels.

With regard to the threat of invasion by the desert confronting Namibe Province, the IDF national director asserted that this phenomenon was successfully blocked during the first phase of the "antidesertification" project of Tombwa, financed by the United Nations Development Fund [UNDF]. "Encroachment by the Tombwa desert has been successfully obviated, but work still remains to prevent the problem of erosion from becoming a serious threat to agriculture."

He then went on to say, "Together with this, we intend to combine forestry with agriculture to create natural walls against the prevailing winds threatening to damage the crops in that province."

National Parks With Promising Prospects

Most of the national parks are in deplorable condition, and many of the zoos composed of a number of species, among which is the giant black "palanca" found only in Angola, has practically disappeared.

Contrary to what is now occurring, a zoo formerly contained a herd of animals peacefully grazing in their natural habitat. Now this picture has changed, for in time of war hunting was even done by helicopter. "As a result," the director said, "some animals have disappeared and others were exterminated."

In the opinion of Paulo Vicente, the unstable situation prevailing in Angola caused many of the men working in the parks to abandon these areas in order to seek refuge in safer places.

With regard to the Kissama park, Paulo Vicente asserted that the situation in that park began to deteriorate with the arrival of a number of fishermen who were fleeing from other areas, especially Kwanza-Sul, and, because of the war, had decided to settle there to combine the fishing activity with that of hunting. "To these were added clandestine hunters who, while not residing there, appeared on the scene to kill animals indiscriminately," he said.

The situation prevailing in this park is the same as that prevailing in Bicuar Park in Huila, Chimalavera Park in Benguela, Iona Park in Namibe, the Luando Reserve, and the Kangandala National Park in the province of Malanje.

Due to this situation, some species have already begun to disappear. The white rhinoceros has disappeared. An attempt was made to restock Kissama Park with this species through animals coming from South Africa, but they also died out.

As for the black "palanca," which is now on the way out, Vicente said that a recent flight was made over Kangandala Park to ascertain if a few animals of this species still remain, this species existing solely in our country. "In the short flight which we made, we managed to find three herds."

"The prospects are encouraging; in the near future we plan to spend several hours attempting to take an exhaustive account of the "palancas" still remaining and later find a way to protect them in their own habitat," he said.

With regard to protection of the elephants, a definite project is being worked out by the SADCC [South African Development Coordination Conference] in which Angola is involved; this project is specifically designed to protect the elephant as a species.

Paulino Vicente stated that the Ministry of Agriculture is making every effort to put the administration of the country's national parks on a solid footing, staffing them with knowledgeable people capable of administering and managing them in order to provide for proper inspection procedures and a corps of conservation officials devoted to the protection and prevention of indiscriminate killing of the animals, as has been occurring until now. "For this purpose we plan to hire about 60,000 people who will be demobilized from the war," he said.

"As for Kissama Park," he continued, "an expert of Spanish nationality will be arriving in our country this month; he will be administering the training courses to be pursued by the inspection officials."

Iona National Park has already arranged financing in the amount of 5 billion lire (about $4 million)—made available by the Italian Government for the park's restoration.

The restoration of Chimalavera National Park will be easier inasmuch as this park is smaller than the others, has better control over the species which reside there, and will be receiving local support. The support currently being received consists only in the restoration of some of the basic infrastructures.

Meanwhile, the effort being made by the Ministry of Agriculture to put the administration of the parks on a better footing is encountering a number of obstacles. In Bicuar there are still a few armed individuals who are interfering in the park's operation; and in Cameia, Huila, and Moxico a number of mines are still in existence, often touched off by the animals themselves, principally the elephant.

Pollution, Measures Urgently Needed

Although our country is not seriously affected by the pollution problem, the IDF director recommended that measures be taken to treat petroleum and cement residues, considered one of the most serious proliferators of this phenomenon associated with the sea.

He stressed chaotic construction projects in the cities as being one of the sources of environmental pollution in our country, principally in Luanda.

He called attention to the risks being run by people who purchase their food in open-air markets, since, according to him, these products are subject to all sorts of pollution coming from garbage and other sources of contamination.

He spoke of the Luanda airport being near the city, automobiles running with defective exhaust pipes, and parties given on weekends everywhere in the city without regard for one's neighbors, as being a major source of noise pollution.

While pursuing agriculture per se, the peasants in the south central part of our country have devoted a portion of their time to the activity of beekeeping (the production of honey and beeswax) in quantities which served to supply a substantial part of the domestic market.

State support was never received by the peasants for this important activity due to the war which ravaged the country.

However, times have changed and the new atmosphere now prevailing has resulted in a freer circulation of people and goods, producing greater possibilities for contact with the peasants as a whole. With the advent of peace, IDF plans to prepare a regional beekeeping extension program, improve traditional apiculture, and make a profound study of the beehives which need to be placed in each apicultural area.

He said that the IDF is also planning to conduct a survey of all the traditional apiary areas in the country, construct beehives and shelters where the bees can swarm to produce honey, and provide information on the techniques used in apiculture for the promotion of that activity.

In the sphere of pisciculture (the raising of fish in tanks), steps are being taken to construct large-scale tanks to produce filapia (cacusso) and freshwater catfish, principally in areas where marine fish take a long time to mature.

Vicente then went on to say, "We plan to conduct a survey of all the tanks which existed in the colonial era, restore the same, or build others.

"We also plan to induce the private sector to build tanks for the raising of fish in areas where there is great difficulty in producing this type of food," he said.

DJIBOUTI

Center To Combat Aden Gulf Pollution

92WN0282A Djibouti LA NATION DE DJIBOUTI in French 5 Dec 91 p 3

[Interview with Mr. Ahmed Osman, director of maritime affairs; place and date not given: "Protection of the Marine Environment in the Aden Gulf"]

[Text] **Some 40 agents and public- and private-sector operators from the Djibouti International Port (PAID), the fire brigade, and oil companies attended an introductory course on the use of marine pollution-control equipment, organized for 23 to 27 November 1991 by experts of the International Maritime Organization.**

The course, which representatives of Yemen and Somalia were supposed to attend, was organized to mark the creation of the Aden Gulf Center for protection against the risks of pollution.

The center, which just received a considerable quantity of equipment, is taking shape progressively, as Mr. Ahmed Osman, director of maritime affairs and coordinator of the center activities, explained in this interview:

[LA NATION DE DJIBOUTI] What is the subregional center to control pollution by oil and gas and other noxious substances in the Gulf of Aden, and what is its objective?

[Osman] The subregional center to control pollution by oil and gas and other noxious substances in the Gulf of Aden is the result of negotiations that started in 1987

between Aden Gulf countries, the International Maritime Organization, and the UNEP [UN Environment Program].

Its objective is to improve the ability of the three governments concerned (Yemen, Somalia, and Djibouti) to protect the subregion's marine environment and shores from any major pollution, because it could not fail to have ecological and economic consequences disastrous for all.

[LA NATION DE DJIBOUTI] What is pollution?

[Osman] The best answer I can provide is the definition of the UN Convention on the Law of the Sea, a convention by the way that our country signed in 1985.

"Pollution of the marine environment" means the direct or indirect introduction, by man, of substances or energies into the marine environment, including estuaries, when such introduction has or may have detrimental effects such as damage to biological resources and to the marine fauna and flora, hazards to human health, hindrance to maritime activities, including fishing and other legitimate uses of the sea, alteration of the quality of sea water from the point of view of its utilization, and deterioration of its enjoyment value." [quotation marks as published]

[LA NATION DE DJIBOUTI] What forms does pollution take and how high is the risk of maritime pollution?

[Osman] Pollution takes many different forms. It can involve substances or objects that are dumped or thrown back into the sea; it can result from an accident at sea, with all its consequences on the marine fauna and flora.

Industrial waste and residues can be toxic, radioactive, or polluting materials in various forms (solid, liquid, or gaseous) and any type of packaging.

Imagine the impact on the marine environment of the wreck of a ship carrying 5,000 vehicles (that happened some time ago in the Strait of Gibraltar, between Spain and Morocco), or the loss of several hundreds of barrels of mercaptan.

As for the risk of marine pollution, it is a daily risk: The Gulf of Aden is one of the most heavily traveled sea routes in the world, especially by oil tankers, and any accident at sea in this region would affect the preferred reproduction areas of species, our fishermen's working tools, and natural sites.

[LA NATION DE DJIBOUTI] Can marine pollution be willful or accidental?

[Osman] As it happens, unfortunately, marine pollution can be both willful and accidental. A mechanical failure may be expensive, but too many ships are still cleaning their oil tanks off the shores. Certainly, a large majority of merchant ship captains do comply with regulations in this respect, both national and international. However, there are some irregulars who damage the environment.

[LA NATION DE DJIBOUTI] Then, precisely, what are the means available to you to fight these clandestine polluters?

[Osman] It is always difficult, by definition, to fight clandestine polluters, as we never know ahead of time when and where they will dump their waste into the sea.

However, over the years, our country has acquired a legal arsenal that has a definite deterrent effect. I shall mention only one law: the law of 3 April 1989 that prohibits the importation into the country of toxic, radioactive, or polluting industrial wastes, and quite simply punishes all offenders with life imprisonment.

[LA NATION DE DJIBOUTI] Who paid for the pollution-control equipment stored in a PAID hangar, and how much did it cost?

[Osman] The pollution-control equipment stored in Djibouti was paid for by Norway and, to a lesser extent, by Sweden, at a total cost of some $700,000.

[LA NATION DE DJIBOUTI] What are the future prospects of the center?

[Osman] If we already have equipment, we still do not have a true operations PC [expansion not given] to coordinate our pollution-control efforts in a large geographical area, extending from Bab-el-Mandeb to the Socotra island. It is on this project that we are now going to focus our efforts.

[LA NATION DE DJIBOUTI] Are you satisfied with this course, and will it be followed by others?

[Osman] Of course, I am satisfied with this course: for one week it brought together operators from various areas of the private and public sectors.

Certainly, we still have a lot to learn concerning the use of equipment that is stored on land and to be used at sea. There are problems of logistics, supplies, coordination; but with a little good will, we shall soon gain experience, although the ideal would be to have to use it [sic]: as the saying goes, prevention is better than cure.

IVORY COAST

Government Urged To Sign Endangered Species Accord Before Eco-92

AB1702111692 Abidjan FRATERNITE MATIN in French 10 Feb 92 p 5

[Article by Hilaire Gome of the Ivory Coast Green Cross Society: "Protection of Africa's Elephants—Is Ivory Coast Finally Going To Sign the Washington Convention?"]

[Text] On Monday, 27 January, a meeting of experts of all member countries of the United Nations Environment Program [UNEP] opened at UNEP headquarters in Nairobi to discuss the Convention on International

Trade in Endangered Species threatened with extinction. This convention, known under the acronym CITES, was adopted in Washington, D.C. in March 1973 and went into effect in 1975. By 30 June 1990, 106 countries had signed CITES.

For a long time the issue of the protection of the African elephant has divided the international community. Should the trade in ivory be prohibited or should its exploitation and marketing be limited at the local level? In the absence of any consensus, the international community had to register the African elephant under Annex 2, meaning that the ivory trade could be tolerated. Today, the threatened extinction of the elephant on all continents and, particularly, on the African Continent, has forced the international community to bring the elephant back to Annex 1, that is, the strict ban on any form of international trade in ivory.

Why is the Green Cross of Ivory Coast, after failing in its 1988 campaign to protect elephants in Ivory Coast, bringing this issue up again? The reasons are simple. In 1979, Africa had an elephant population of 1.3 million. Today, there are only 650,000 elephants left in the whole of Africa. The figures are even more alarming in Ivory Coast. Thirty years ago, our country had 100,000 elephants, but today there are only 2,500 left. This implies that elephants are massacred at the rate of 3,000 per year. They are hunted just for their two tusks. What a crime! Killing just for two tusks!

Our country is called Ivory Coast, meaning, the coast of elephants. Our national football team is called the Elephants, and so on...our national emblem is the elephant—and to think that for 17 years Ivory Coast has refused to sign that convention and thereby refused to protect elephants, its emblem! Since 1989, those dragging their feet have signed the convention but not Ivory Coast, which prefers to be a marginal celebrity. Our country and Botswana are the hub of the international traffic of ivory, the major suppliers of the city of Hong Kong, the international gigantic ivory workshop.

Why does our country not want to sign that convention? Three reasons are often advanced for that: 1. Hunting is banned in Ivory Coast since 1974, so the elephant has the time and suitable conditions to reproduce.

2. The elephant is a source of foreign exchange for our country.

3. Excessive growth in the elephant population represents a danger not only to the security of the people, but also to crops and harvest.

We, of the Green Cross, believe that these arguments are not enough to justify our country's marginal position. First, all Ivorians know that the ban on hunting in our country is not a reality. The presidential decree is not enough. Hunting is flourishing, and local restaurants thrive on smoked bush-meat which abounds in our markets and public places. Ask the forest rangers, they will be able to tell you more. In the face of ecological changes and superbly armed and protected poachers, the elephants, the emblem of the Ivory Coast, do not get the time to reproduce. In any case, one must live to be able to reproduce. Dead bodies do not reproduce, they rot.

Furthermore, it is true that Abidjan is full of shops for the sale of ivory objects and even of ivory but then, how much does this trade fetch Ivory Coast? What is its impact on our national economy? Poachers are content with only the crumbs. The major part of the earnings go to their sleeping partners. Are these sleeping partners Ivorians? What sort of Ivorians are they? Are they the managers of our national parks? Are they the decision-makers? Are they ivory smugglers? Who benefits from the trade in ivory?

We believe that if Ivory Coast has not signed the convention, it is certainly because the head of state was not correctly informed of the situation and of our country's discredit in the international community. Did one former Ivorian minister of agriculture, water, and forest resources not say that our elephants are the best protected in our subregion? Asked why their number was decreasing, he answered without blushing: "They have crossed over to neighboring countries." Well done!

One is tempted to find out why elephants from other countries do not come as tourists to our country? Anyway, these are all elephant stories! Let us talk about serious things.

It is high time our country reacted positively by signing this convention of which it should have been its first defender because of the aforementioned reasons. This year, 1992, is the year of the environment; the year of the UN Conference on Environment and Development in Rio de Janeiro (1-12 June). This year being the year of the signing of several old and new conventions, Ivory Coast should sign CITES, preferably, before Eco Brazil 92.

Entrusted with the continental mandate to serve as Africa's spokesman in Brazil, Ivory Coast's mission as defender of the environment should in no way suffer from any contradiction. A special advice to all Ivorian delegates to international fora: Do not offer gifts made from ivory; it is henceforth prohibited. As you can see, the elephant issue is no longer deceptive!

NAMIBIA

Minister To Appeal to CITES on Controlled Elephant Products Trade

MB2602140692 Johannesburg SAPA in English 1017 GMT 26 Feb 92

[By Carmen Honey]

[Text] Windhoek, Feb 26 (SAPA)—Namibia will be defending its Constitution when it appeals for the resumption of controlled trade in elephant products at

an international conference in Japan next month, Conservation, Wildlife and Tourism Minister Niko Bessinger said on Wednesday [26 February]. Mr. Bessinger was speaking at the opening of the 18th annual meeting of the Namibia Professional Hunters Association in Windhoek. "We will stick to our guns, we will not allow ourselves to be outdone by numbers... by sensationalism," he said referring to the Convention on International Trade in Endangered Species (CITES) meeting in Kyoto.

Namibia, and four other southern African countries, have launched a Southern African Centre for Ivory Marketing [SACIM] in Botswana, for the controlled marketing of ivory. A world ban was placed on trade in ivory at a CITES meeting in Rome in 1990.

Mr. Bessinger said the March meeting would be a watershed for wildlife conservation and the sustainable utilization of renewable resources. "We are going to Kyoto to engage in a battle that as far as we are concerned is a fundamental principle," Mr. Bessinger said.

Article 95 of the Namibian Constituition provides for "the maintenance of ecosystems, essential ecological processes and biological diversity in Namibia and the utilization of living natural resources on a sustainable basis for the benefit of all Namibians". Mr. Bessinger said he noted at a meeting in Perth in 1990 that this pillar on healthy wildlife utilization was being challenged "at its very roots."

"If reason should prevail (at the CITES meeting) the downlisting of elephant would be the only logical result," Mr. Bessinger said. Elephant are currently listed on Appendix I which totally prohibits trade in their products. The SACIM countries, all with healthy elephant populations, are applying for a downlisting to Appendix II, allowing controlled trade.

"We are ready for battle." People who thought Namibia would come home "bloody and bruised", Mr. Bessinger said, could expect a surprise. "At the end of the day we will be defending our Constitution," he concluded.

SOUTH AFRICA

Natal Drought Leads to Growing Rural Depopulation

MB1002154192 Umtata Capital Radio in English 1400 GMT 10 Feb 92

[Text] Natal farmers say the present drought is the worst this century. Agricultural Department Secretary Louis Kruger says crop losses of nearly 10 million rand can be expected in parts of northern Natal and kwaZulu. More that 40 northern Natal farmers have lost their farms in the last year and a half and this figure can be expected to rise sharply. As John Matham reports this growing depopulation of the platteland [rural area] is becoming a nationwide crisis.

[Begin Matham recording] South African Agricultural Union economist Koos du Toit says catastrophic consequences will follow the large-scale abandoning of farms made into wastelands by drought. First National Bank's agricultural adviser Frans Venter says the decline in farmers' fortunes have the knock-on effect. He says the industries which service the farmer also move on and this contributes to the slow strangulation of the platteland economy. Venter says if the drought doesn't break poor rural conditions could force a mass move to already overstrained cities. Du Toit believes the state should subsidize the nearly bankrupt farmer to stay on the land. He says in the long run this will be cheaper than accommodating the flow of farmers and their dependents into the city.

Drought 'Potential Time Bomb' for Cities

MB1402190892 Johannesburg SAPA in English 1751 GMT 14 Feb 92

[By M.A. Farquharson]

[Text] Johannesburg, Feb 14 (SAPA)—It has been described as the biggest disaster ever to have hit South Africa's farming community, as a warning from God—and as a time bomb which could see barely-educated farmworkers streaming to the already crowded cities to find work.

"It" is the drought currently devastating South Africa and much of southern Africa, including Zimbabwe, north-eastern Swaziland, southern Angola and Zambia.

In South Africa, farmers—many already loaded with debt thanks to the 1983/84 drought—have watched their crops being all but destroyed by searing temperatures and a lack of rain.

In Parliament, at farmers' meetings, and at news conferences, everyone and everything has been blamed for the current agricultural crisis: the government, high interest rates on crippling mortgages, an unsympathetic land bank, the farmers themselves, and divine intervention.

Central to an understanding of the importance of the drought is the almost mythical tie in Afrikaner culture between the Boer and his farm. For many—even those who have been urbanised for a generation or more—their dream is to one day get back to the land.

Most of those managing large farms are Afrikaners. Black farmers, limited mainly to the homelands or self-governing states, usually operate on a subsistence level.

One of the major problems in the present drought is that if a white farmer operating on a large scale goes bankrupt, his farm labourers—and their many dependants—are left without homes or jobs.

During a special parliamentary debate on February 6, Jannie Momberg, an MP for the Democratic Party [DP],

said it was calculated that about 1.1 million people were employed on farms in South Africa.

If one accepted that each worker had about seven dependents, this meant that about eight million people depended on agriculture.

Of these, about five million would be drastically affected by the drought, and there was a real possibility that they and their dependents would stream to the cities looking for work.

"This is a potential time bomb of people who have no jobs and who are mostly without school education and will be left absolutely at the mercy of others."

Current reports on the seriousness of the drought first started coming in from early January, with conditions reported to be at their worst in the Orange Free State and the Transvaal.

In Natal for example, SABC [South African Broadcasting Corporation] radio news reported in the second week of the new year that mielies [corn plants] in the Paulpietersburg and Vryheid areas had been scorched by the sun, and conditions in the Winterton, Bergville, and Richmond area?were critical.

Nine days later the highveld regional director of agricultural development, Dr. Wilhelm Snyman, warned that unless it rained within a week or two there was a grave possibility of severe crop losses.

Farmers had already begun cutting their crops for fodder because of the drought damage.

In Cape Town the superintendent-general of agricultural development, Dr. Frans van der Merwe, said the season had started with insufficient rains and low moisture levels in the soil.

Farmers were forced to plant under these conditions, which only worsened as a heat-wave swept the country and rain failed to fall, or fell in limited amounts across small areas.

The heat also reduced the grazing available for livestock, Dr. van der Merwe said.

A few days later in Bothaville, about 40km from Welkom, in the heart of the Orange Free State's maize district, a local farmer said his mielies had withered, the beans were dying and the sunflowers looked like drooping mops.

"My cattle are still in fair condition but there is little grazing left and I am fast running out of fodder," the farmer said.

Farmers and residents of rural towns began praying for rain, while the rightwing Conservative Party [CP] took up the farmers' cause.

Last weekend, for example, farmers in the northern Transvaal said the drought was the best thing that could have happened to futher the rightwing cause.

One northern Transvaal farmer, who said he was staring bankruptcy in the face, estimated that of the approximately 80,000 farmers in the country, only half could be left in 12 months time.

The farmer said he, like many others, was cash-strapped and immersed in debt, and would be unable to feed his family in a few months. His crops were on the brink of complete failure.

The situation, and the fact that no work could be found in the cities, was radicalising farmers. The "Boere" were organising themselves politically and were ready to act.

On February 4 the minister of agriculture, Dr. Kraai van Niekerk, announced that he would visit drought-stricken areas in the Orange Free State and the Transvaal the following week.

Two days later the House of Assembly began a special debate on the drought—and there appeared to be as many reasons for the crisis as there were speakers.

Dries Bruwer, for the official opposition CP, said the drought was probably the biggest disaster which had ever hit South Africa's farming community.

Mr. Bruwer, who is also president of the Transvaal Agricultural Union and his party's chief spokesman on agriculture, said it would appear that urban dwellers did not understand the extent of the disaster.

In the western Transvaal, the situation on Wednesday had been that a 22 percent crop was expected. He had been told that if it did not rain by Friday, this would be reduced to 10 percent, and if not by Sunday, to nil.

In mid-Transvaal a 40 percent crop was expected, while in the eastern Transvaal the situation was also critical.

The results could be starvation, as well as an increase in unemployment and crime.

"We must do something now to halt this catastrophe."

He said the state, farmers and financial institutions, all of whom were at fault, had to contribute.

Dr. van Niekerk said the government had great sympathy and understanding for farmers in their hour of need and would assist the agricultural sector within the limits of its financial capacity.

Whole rural communities suffered when farmers experienced financial crisis. Aid to farmers therefore enabled them to pay wages to the labourers, service debts at commercial banks, and pay accounts at local businesses.

Dr. van Niekerk also called on financial institutions—including the Land Bank, commercial banks and other creditors—not to act hastily and irresponsibly.

Dr. Ferdie Hartzenberg, for the CP, said the harvest for the western Transvaal was "virually nil".

"The financial implications are alarming. Unlike the 1983/84 drought, the farmer's ability to absorb the present losses is much weaker now," he said. Land prices had decreased, state subsidies were at their lowest levels and production credits and input subsidies were no longer available to farmers.

He urged the government to consider a debt standstill to enable insolvent farmers to remain on the land.

Mike Tarr, DP Pietermaritzburg North, said South African agriculture was "learning valuable and painful lessons about the mistakes of the past". These included inflated land prices, which had led to incorrect land use, and import substitution tariffs.

He urged the government to immediately consider short-term measures to help drought-stricken farmers and direct grants to farm labourers to enable them to remain on farms.

DP MP Rob Haswell said the challenge facing agriculture was to ensure that people lived and farmed in "environmental harmony".

"Droughts are man-induced. The veld is severely degraded and over-stocked.

"Without minimising the impact of the situation, we live in a land of drought rather than plentiful rain. We have to learn to live with our conditions rather than react when drought occurs," Mr. Haswell said.

The MP's views were echoed by the president of the East Cape Farmers' Union, Tinus Hartman.

Mr. Hartman said parts of the eastern Cape had been drought-stricken since 1982 and farmers were learning to live with it.

"The drought is not new to us. We have had drought conditions for almost 10 years and farmers are learning to manage."

On Monday and Tuesday Dr. van Niekerk spent two days touring drought-stricken districts to find out whether reports reaching him on the crisis were true.

"Now I will have to report back to Cabinet because it is a crisis," he told about 300 farmers in Bethal in the eastern Transvaal on Tuesday.

Although Dr. van Niekerk promised that steps would be taken to help the farmers, deputy minister of agriculture, Tobie Meyer, warned that blanket aid would not be provided.

Each case would have to be examined so that any assistance granted would not distort market forces.

Farmers in areas visited by Dr. van Niekerk complained, among other things, of an unsympathetic Land Bank sequestrating farmers and taking over their land for unpaid debt, and of high input costs.

Inflation and high interest rates were also blamed for the crisis.

Farmer Jan Coetzee, near Sannieshof in the Delarayville district, complained high taxes forced farmers to buy "useless" agricultural machinery to avoid tax.

On Monday, a farmer told Dr. van Niekerk and about 600 other farmers at a meeting in Kroonstad in the [Orange] Free State the drought was a clear warning from God.

"We are provoking God by putting alien gods on an equal footing with Jesus Christ," said Jannie Els of Heilbron—to applause.

"Our leaders set a negative example by dishonouring the sabbath. Religion is being removed from our educational system too. As agriculturalists we cannot allow this," Mr. Els told the minister.

At the same—often angry—meeting, the farmers presented the minister with a barrage of demands for financial relief.

The chairman of the National Maize Producers Organisation, Cerneels Claassen, accused Dr. van Niekerk of having said nothing new.

While farmers went direct to the minister of agriculture for help, what of farm workers?

Flip Kotze, of the Farm Bornio near Delareyville in the western Transvaal, said farmers urgently needed short-term assistance to pay their workers.

Better-off farmers were already making maize available to their neighbours free of charge to ensur? they and their workers did not go hungry.

Several farmers had paid off labourers they could no longer support, Mr Kotze said.

There were also cases in the district where labourers had volunteered to stay on while receiving only food and housing.

On Tuesday Operation Hunger reported that two million black people could be starving by May unless the government speeded up drought relief.

A tiff erupted between Health Minister Dr. Rina Venter and Operation Hunger over the allocation of R[rand]220 million promised to non-government groups for hunger relief in the government's budget in April.

Operation Hunger director Ina Perlman said none of the money promised by the government had reached the welfare agency.

Dr. Venter said the money had not reached Operation Hunger because Ms Perlman had written to her office, rather than to the Department of National Health and Population Development.

The minister further needed to know how the money—which came from the taxpayer—was going to be spent.

In an editorial published on Friday, Johannesburg newspaper BUSINESS DAY drew comparisons between government reaction to the plight of farmers and of starving workers.

"Venter also needs a helicopter tour. Perlman can show her, and the nation through TV, the effects of drought on distant, forgotten and starving communities. Then let us see what is being done to alleviate their suffering.

"If Agriculture can cut red tape, then so can Health; we are not a nation that cares more about dying mielies than dying people," the editorial concluded.

ZAMBIA

Government Opposes Resumption of Trade in Ivory, Elephant Products

MB1002185192 Lusaka Zambia National Broadcasting Corporation Network in English 1800 GMT 10 Feb 92

[Text] The government has said it is opposed to the resumption of international trading in elephant products and said Zambia is reviewing Zambia's membership to the Southern Africa Center for Ivory Marketing.

Tourism Minister General Christon Tembo said in a statement released in Lusaka today that a review of evidence has indicated that the disastrous decline of the country's elephant population prompts radical change of the national elephant policy.

General Tembo, who will be leading a delegation to the convention on international trade and endangered species early next month in Japan, and has already written to his ministerial counterparts in many other African countries to support Zambia's stand of banning trade in ivory and elephant hide.

ZIMBABWE

Progress Reported in Viable Fuel Management

92WN0283A Harare THE SUNDAY MAIL in English 5 Jan 92 pp 1, 3

[Text] The immediate solution to Zimbabwe's woodfuel crises lies in developing fuel management systems initiated by communal people, researchers have established.

According to research done by the Network of Environmental Experts (ZERO) on Zimbabwe, people in heavily deforested areas had now adopted a viable fuel management system which have resulted in them using 50 percent less fuel than those in forested areas.

Some had turned to other forms of fuels such as cow dung and maize cobs to reduce reliance on woodfuel. Those with forms of earning money now bought fuel and this was a positive development.

"Switching to lower grade biomass and conventional fuels now occurs naturally and people with money are now even leaving wood for the poor and rely on conventional fuels," says one of the experts, Mr. David Hancock.

The experts argue that some of the methods being adopted by Government were not the best solutions. The solution was to build on the systems developed by the people.

Studies had shown, for example, that rural people relied on Wood from the scrubland and that if the scrubland was properly managed it would be of great use.

"People know what their needs are and how best to meet them. They are responsive to a changing environment and know exactly what fits in the complex and precarious business of survival," said Mr. Hancock.

It had also been proved that contrary to what many people believed that rural people were more interested in cutting down trees than planting them, research had shown that over 90 percent of households in both forested and deforested areas planted trees.

They did this despite problems such as those of white ants and livestock which reduced the survival rate of the trees to about 5 percent.

The use of cow dung in such places as Seke had come under attack from agricultural environmentalists who argued that it deprived the soil of necessary nutrients. Energy experts, however, say this is the best use of dung can be put to. Only dung from cattle kraal was sufficiently rich to be of use to crops.

Although woodfuel resources were fast diminishing, Zimbabwe was not yet short of wood as it still had up to 610 billion tonnes of wood. However, most of the wood was on commercial land and not easily accessible to those who needed it.

Resettlement schemes had also been developed in a way that avoided over-exploitation of wood. However, due to poverty, some people in resettlement areas were now selling wood to nearby communal areas.

Lorry-loads of wood are being sold to people in communal areas and this must be discouraged and the communal people encouraged to use the methods they have developed," said Mr. Hancock.

There was need for a shift from the "hardware approach" to socially orientated strategies. ZERO was now developing a series of national programs that would attempt to take a lead from the people.

These would include resource sharing agreements between communal people and commercial farmers, institutional support to growing certain preferred trees and research into lower grade fuels.

ZERO would also help in doing research into the regeneration of indigenous trees and supporting the transferring of management systems developed in areas of environmental stress to those which are yet to be stressed.

The research was carried over two years and covered a wide spectrum of lower income communities. It was prompted by the lack of success in most of the technological solutions developed to try and improve supply of energy to rural communities.

Official Says Agricultural Situation 'Extremely Serious'

MB2202120392 Harare THE FINANCIAL GAZETTE in English 13 Feb 92 p 1

[Unattributed report: "Disaster Looming as Drought Takes Toll"]

[Text] The agricultural industry, which is experiencing the worst drought in living memory, is in such a critical state that the country has no choice but to import vast quantities of maize, sugar, wheat and milk, Commercial Farmers' Union (CFU) president, Mr. Alan Burl, said this week.

"The situation is extremely serious at the moment," Mr. Burl said in an interview.

The current drought was certainly the worst since 1967-68, but some farmers with records going back to the turn of the century described it as the worst since 1911, he said.

Virtually all sectors of the farming economy, from maize, through cereals, oilseeds, sugar, timber and livestock have been hit.

The only optimistic note is from the tobacco sector, where growers expect a record crop of 200,000 tonnes compared to 170,000 tonnes in 1991.

This is of critical importance to the country as it proceeds with a year-old economic reform programme, with tobacco the major agricultural foreign exchange earner.

Mr. Burl said parts of the south, south-west and east of the country had already lost their maize crops due to the drought.

He predicted supplies from the communal areas, which export their surplus to the Grain Marketing Board (GMB), would drop to about 10 percent of last year's supply.

He expected the commercial farming sector to supply only 30-40 percent of last year's supply.

Mr. Burl said Zimbabwe had a current maize stock of about 159,000 tonnes. He predicted the country would have to import about 750,000 tonnes of the food staple maize by April 1993.

Zimbabwe had contracted for 100,000 tonnes of maize from South Africa, of which 25,000 tonnes had arrived. However, South Africa was also facing a shortage this year due to drought.

Mr. Burl said Zimbabwe had about 259,000 tonnes of wheat in hand which is used to supplement maize in poor seasons.

But a lack of surface water threatened to cut 1992 wheat production to one-third of last year's output of just under 260,000 tonnes. He anticipated imports of around 250,000 tonnes by May next year.

He said Zimbabwe would be hard pressed to produce 50 percent of the 1991 barley crop of 31,000 tonnes and imports were likely.

"Sugar is in a disastrous situation," he said, with the main southeastern reservoir, Zimbabwe's second biggest lake, Lake Kyle, down to 0.8 percent of capacity.

"We're looking at selling only 30 percent of normal (around 460,000 tonnes)," Mr. Burl said, while industry sources said exports would likely be cut off for up to 18 months.

"We might have to import 200,000 tonnes of refined and semi-refined sugar," he said.

There were also serious implications in the loss of molasses for animal freed and ethanol, which is used as a 20 percent additive to petrol to cut fuel import costs. Of the oilseeds, soyabean output was likely to drop at least 40 percent from last year's crop of around 110,000 tonnes.

Sunflower production was likely to fall to 50-60 percent of the 1991 output, Mr. Burl said.

Cotton had also suffered badly and the textile industry would probably have to import lint for processing, he said.

The drought had hit the livestock industry, with some farmers slaughtering herds to rebuild later when conditions improved.

Grazing and water problems were aggravated by growing shortages of stockfeed.

Meanwhile dairy farmers need an immediate 100 percent increase in the producer price of milk and a monthly review of producer and consumer prices to help return the industry to viability the chairman of the National Union of Dairy Farmers, Mr. Ron Franklin, said.

"In a few short years, we have been reduced from a sophisticated first world dairy industry to one of subsistence and mere survival," he told a seminar in Harare on the future of the industry.

He said low producer prices, soaring costs and the current drought were driving dairy farms to the wall.

Commercial Farmers' Union vice-president Mr. Anthony Swire-Thompson said the dairy farmer needed a minimum of $1.30 for every dollar invested to attempt to recover costs and overheads. He was currently receiving 96 cents and this could fall to 68 cents next year if the current trend continued.

He said the whole system of price negotiations between producers and the government needed to be reviewed.

Effects of Drought Deepening Throughout Country

MB1402155992 Johannesburg SAPA in English 1440 GMT 14 Feb 92

[By a Special Correspondent]

[Text] Harare, Feb 14 (SAPA)—As each day passes with no rain and unusually high temperatures, Zimbabweans are beginning to grasp that the country is undergoing the worst drought in its recorded history.

The country is faced with crippled agricultural production, massive food imports severe dislocation of the economy, possible to live from hand to mouth with water supplies.

"It is the mother of all droughts", said Richard Amyot, chief executive of the Commercial Grain Producers' Association, after returning from a helicopter flight over the usually highly productive cropping areas of the north of the country with Agriculture Minister Witness Mangwende. "We have seen only devastation on the way."

The usually arid southern-eastern lowveld is the worst-hit part of the country, with about 13 percent of normal rainfall. Following close behind are the eastern districts on the eastern border with Mozambique—the rain in the forest area of Vumba this week was 675mm below normal.

Up until last month, the country's central and northern districts appeared to have escaped the extreme conditions, but now, said Mr. Amyot, "this is right across the country".

The Grain Marketing Board [GMB], the parastatal body responsible for buying and selling maize, the national staple, has estimated a harvest of 400,000 [metric] tons this year, the same as in 1986/87, when the last serious drought occurred.

Mr. Amyot predicted the estimate was "very probably too high", making for the worst yield in decades.

The government is in the process of importing 100,000 tons of South African white maize, but there is growing alarm that it is not being delivered fast enough to keep up with rapidly dwindling reserves.

With no prospect of further imports from South Africa, the GMB has been pursuing contracts in the Americas, Ministry of Agriculture sources told SAPA, but no supply had yet been secured.

On Thursday the Shona vernacular Harare newspaper, KWAYEDZA, reported that in southern Masvingo Province, women carrying water from wells and boreholes were being pursued by thirsty cattle, and that they were now having to fetch water with male escorts.

The Commercial Farmers' Union, regarded as the backbone of the agricultural industry, said this week that huge quantities of not only maize but also edible oils, sugar, barley and wheat—as well as cotton lint for the textile industry—would have to be imported.

The Standard Chartered Bank estimates that as much as U.S. dollars 200 million will have to be spent on food imports.

The maize shortage also directly affects the livestock industry and shortages of poultry, eggs and pork have been predicted because maize for stockfeed have been rationed to half of normal supplies.

Milk and dairy products are also under threat, not only because of the drought but also as dairy farmers struggle under a viability crisis caused by low state-regulated prices for their production.

An estimated 100 dairy cattle are being slaughtered daily to provide farmers with ready cash.

Graham Franceys, president of the Cattle Producers' Association, was quoted in the local press on Friday as saying that 250,000 cattle would have to be slaughtered by June. Farmers had no alternative, he said.

"There is no grass, there is no water because of the drought and there is no stockfeed."

The situation was worsened by a 40 percent increase in the stockfeed price on Monday.

Many of the country's urban areas are running dangerously low on water supplies.

The eastern city of Mutare is down to three months supply, while Bulawayo, the second largest city, has only until July to rely on its dams. The textile town of Chegutu is also estimated to have three months supply, while the historic town of Masvingo is depende?t on a shrinking pool in nearby Lake Mutirikwi, down to 0.8 percent of capacity.

Mines all over the country have also expressed fears that they will run out of drinking water.

An economic survey drawn up by the Standard Chartered Bank last mouth pedicted that in a worst-case scenario, Zimbabwe's gross domestic product in 1992 could contract by three percent. Economists, administrators and business leaders believe that situation now applies.

Environmental Protection in Electric Power Industry Viewed

92WN0226A Beijing DIANLI JISHU [ELECTRIC POWER] in Chinese Vol 24 No 11, Nov 91 pp 2-7

[Article by Shu Huifen [5289 1920 5358], Safety and Environmental Protection Administration, Ministry of Energy: "Conscientiously Implement the State Council Decision on Further Strengthening Environmental Protection Efforts, Revamp Environmental Protection in the Electric Power Industry"]

[Text] **Editorial Note.** Environmental protection is a basic national policy and a glorious undertaking that will create wealth for mankind as a whole and for future generations, but is also an arduous task. During the Seventh Five-Year Plan, environmental protection efforts in the electric power industry posted major achievements. In order to implement the State Council decision on further strengthening environmental protection efforts, to analyze environmental protection activities by the electric power industry during the Seventh Five-Year Plan, and to draft power-industry environmental protection programs for the Eighth Five-Year Plan, on 25-27 April 1991 the Ministry of Energy held its "Electric Power Industry Environmental Protection Work Conference" in Beijing. Our column for this month is in keeping with the spirit of this conference, whose objectives were to promote the thorough performance of environmental protection activities in the power industry, to strengthen unified management of flyash removal and boiler ash handling, to reap benefits from the investments embodied in existing environmental protection facilities, to make use of scientific and technical progress in the vigorous investigation and development of new technologies and new products, and to coordinate the management and regulation of energy resources with their integrated utilization so that the development of the power industry is coordinated with environmental protection efforts.

I. Summary of Electric Power Industry Environmental Protection Activities During the Seventh Five-Year Plan

During the Seventh Five-Year Plan, China's power industry developed rapidly. New large- and medium-capacity generating equipment and facilities installed during the five-year period totaled 39.05 million kW, including 33.13 million kW of fossil-fired generation capacities, or 84.9 percent of the total. In each year the use of coal electric power generation accounted for about one-fourth of the country's total coal consumption; owing to the large amount and low grade of the coal used for the purpose and the fact that power plants are point-source pollutant emitters, the resultant environmental problems are becoming increasingly troublesome. In order to coordinate electric power production and construction activities with environmental protection efforts, we have pursued the environmental policy of "prevention as the primary aim, coordinated prevention and control, and integrated management," and have stepped up environmental management, utilized scientific and technical progress, and worked to control pollution. With the support of the relevant departments of the State Council, the joint efforts of all departments in the electric power field enabled power-industry environmental protection activities to make major progress, producing a major change for the better in environmental conditions.

In 1990, the average flyash removal efficiency of power plants directly subordinate to the power system exceeded the state target of 93 percent for the Seventh Five-Year Plan. The amount of coal used for power generation by plants with capacities of 50,000 kW or more increased by 90 million tons, but particulate emissions increased by only 90,000 tons. The degree of comprehensive utilization of powdered coal ash reached an all-time high of 18.66 million tons, surpassing the target of 10 million tons three years ahead of schedule. Some 16,000 mu of full ash dumps have already been covered over with earth, providing experience in the recultivation of ash such sites.

The Seventh Five-Year Plan's emission control targets for acidic and alkaline effluent, oil-contaminated water, and other liquid waste from fossil-fired power plants were met. In 1990, 44 power plants implemented closed ash-removal water cycles, and a total of 180 million tons of ash-removal water was recovered. Over the Five years, a total of 700 million tons of ash-removal water and industrial wastewater were recovered and re-used, thus conserving water and controlling wastewater discharges; these measures alleviated water pollution and were of major significance to the self-reliant development of the electric power industry and to economic construction in regions that are short of water.

Ten electric power plants, including the Datong No. 2 plant, were awarded the title of "Environmentally Superior Plant" or "National Advanced Environmental Protection Enterprise" by the state. At the same time, a large group of power plants entered the ranks of province- and municipal-level advanced environmental protection units. At the 1991 environmental protection conference,the Ministry of Energy and the Hydropower Engineering Society jointly commended 16 advanced units that had made contributions to environmental protection in the power industry, 35 advanced collectives, and 100 advanced individuals.

The main insights from power-industry environmental protection activities during the Seventh Five-Year Plan are as follows.

A. Improving leadership environmental awareness and implementing leadership responsibility for environmental protection at all levels are the key to effective environmental protection efforts.

Environmental protection is a basic state policy in China. The state has issued a series of environmental

protection laws and regulations together with the relevant administrative and economic-management measures; in response, leaders at all levels have increased their environmental awareness and their sense of social responsibility for pursuing environmental-protection efforts while increasing output. All local governments have also included environmental protection among their current objectives and have signed environmental protection performance agreements with the provincial or municipal power plant heads. The agreements that some electric-power management administrations and electric-power administrations have signed with power plant directors make environmental protection an important evaluation criterion, and plant directors have also assigned environmental objectives to the individual shops and brigades, so that environmental protection is being implemented at every level and is being conscientiously placed on the agenda at all levels. The top officials of many electric power management administrations and electric power administrations have personally instituted the review of environmental evaluation reports and have incorporated state-assigned management objectives with specific deadlines into administration- and plant-level technical modernization programs.

B. Standardized, systematized management efforts assure the implementation of the "three simultaneous" program.

Controlling new pollution requires effective oversight of the "three-simultaneous" activities. During the Seventh Five-Year Plan, an average of more than 6 million kW of fossil-fired power production equipment went into service every year, and projects representing similar sums were started and were under construction. In accordance with the requirements of environmental protection laws, in order to assure that new fossil-fired power plants or existing plants that are being expanded will comply with local or national emission standards and that no further ground will be lost in environmental protection, we drafted a series of regulations and procedures, geared to the distinctive characteristics of the industry, for each stage of construction, which in combination covered all environmental-protection management activities for the entire course of the construction project. Examples include the "Environmental Protection Management Procedures for the Early Stage of Fossil-Fired Power Plant Construction Projects," the "Regulations for Drafting Summary Environmental Impact Evaluations of Fossil-Fired Power Plant Construction Projects," the "Principles for Drafting Fossil-Fired Power Plant Environmental Impact Statements and Specific Regulations on Their Subject Matter," the "Regulations on Techniques for Meteorological Testing to Determine Pollution Levels Produced by Fossil-Fired Power Plants," the "Regulations on Techniques for Evaluating the Impact of Fossil-Fired Power Plants on the Aquatic Environment," the "Regulations for Environmental-Protection Design of Fossil-Fired Power Plant Construction," and the "Procedures for Acceptance Testing Following Completion of the Environmental Protection Facilities of Fossil-Fired Power Plant Projects." These regulations not only specified the nature of the work to be done, but also clarified the mutual responsibilities of management, design, construction and operation units at all levels and tightened management of the entire environmental-protection process in construction projects.

Over the five-year plan, environmental-protection evaluations were completed for 119 fossil-fired power plant projects involving investments of 200 million yuan or more and for 45 hydroelectric stations. The environmental impact evaluations were used as a basis for defining acceptable scales of construction and specifying required antipollution measures. For example, in the design of fossil-fired power plant projects, in order to assure environmental protection, much use was made of antipollution technologies suited to domestic conditions. In the last few years, electrostatic precipitators have been used for flyash removal on 80 percent of newly commissioned large fossil-fired generating units, and the use of dry boiler-ash handling techniques has paved the way for greater utilization of powdered coal ash. In wet ash handling techniques, slurry transport technology was used and the extent of external disposal of ash-water mixtures was decreased. Each year, every power generation management administration and electric power administration carried out a "three-simultaneous" review of all projects put into operation in that year, and any problems that were identified were corrected in timely fashion. In 1990, the Ministry of Energy set up six "three-simultaneous" inspection teams to review key projects.

C. Environmental management of power plants must be integrated into power-plant operations management in order to achieve truly coordinated development of power production and environmental protection.

Since the reform and opening to the outside were instituted, the implementation of the management contract responsibility system in electric power production and the setting of up direct linkages between performance and power plant employees' economic benefits have provided a great stimulus for all types of power plant-related activity. Environmental protection is an inseparable part of the safe and enlightened operation of power plants, and as a consequence, production targets handed down to certain plants were accompanied by environmental evaluation targets, and environmental protection language was included in the contract provisions governing the technical modernization of old plants and was incorporated into the evaluation standards for upgrading the status of the enterprises. In connection with the technological modernization of pollution control, for example, in a period of three years, funding was provided for more than 900 million yuan worth of environmental protection projects, accounting for more than 50 percent of power plant technological modernization outlays; to this amount was added more than 100 million yuan in supplementary funds and loans made available by the environmental departments out of revenues from waste disposal fees. A total of more than 300 particulate

emissions management projects and more than 100 wastewater management projects were carried out. Closed-cycle boiler ash water-flush systems were implemented at 20 percent of all power plants, which constituted a major advance toward converting wastewater into a usable resource. The disposal of ash in rivers and streams by 12 plants was ended, and a group of power plants rid themselves of the label of "major polluters." Pollution control activities reaped major environmental and economic benefits. For example, Shandong Province invested nearly 20 million yuan in wastewater management projects at several power plants, resulting in a decrease of 17 million tons a year in wastewater discharges and saving 4 million tons a year of fresh water, which yielded major economic benefits.

In 1990, the Ministry of Energy issued the "Evaluation Techniques for the Highest-Level Environmental Protection Rating of Fossil-Fired Power Production Enterprises" and the "Detailed Guidance for Environmental Protection Evaluation of Fossil-Fired Power Generating Enterprises," which made environmental protection a major evaluation criterion in deciding on the upgrading of enterprises and on the attainment of "two-enlightened" objectives, and in addition directly linked power plants' economic benefits and reputations to environmental protection. Enterprise leaders universally treated these matters with the appropriate seriousness, which promoted tighter environmental management and pollution control by power plants and the effective operation and maintenance of existing environmental-protection facilities, thus helping to realize the full benefit of the investments embodied in them.

D. A well-rounded program of scientific investigation provided practical technologies for pollution control.

During the Seventh Five-Year Plan, the electric power industry set up more than 100 environmental research projects. Many of their results have now been disseminated and put into use. New electrostatic precipitators that collect high-resistivity particulates and the flyash from anthracite coal have been implemented; in order to conserve steel, the design of electrostatic precipitator housings has been optimized; and in order to achieve stable, high-efficiency operation and energy conservation, multipurpose power supplies, microcomputer-controlled power supplies and pulsed power supplies for precipitator units have been developed. The pursuit of a well-rounded set of development projects gave results that were highly practicable and which rapidly led to the production of specific products. A project on rotary-spray dry sulfur dioxide removal has already passed state evaluations. New progress has already been made in technologies for the reuse of boiler-ash flush water. A technique for the integrated use of powdered ash from high-ash coal and some economically beneficial energy-saving technologies have been developed.

With the rapid expansion of the electric power industry and the emergence of large power plants and power-plant clusters, there has also been research work on macroscopic topics dealing with the relationship between electric-power programs and environmental capacity. In connection with the drafting of power-production programs, a study entitled "The Changjiang Delta Fossil-Fired Power Program Atmospheric-Environment Forecast," based on an evaluation of more than 30 large and medium-size fossil-fired power plants in East China, forecast the atmospheric environmental impact that the development of coal-fired power generation in this region would be likely to produce by the end of the century and offered suggestions on the electric power program and on rational plant siting. To assure that environmental research projects would quickly lead to production capabilities, we focused on effective coordination of three areas, namely: coordination between applications research and basic research; coordination between technology development and product development; and coordination between the development of technology and its dissemination and application.

E. Strengthen basic work on environmental management and make broad policymaking more scientific.

Environmental monitoring and statistical analysis are basic to environmental management, and in the last five years there has been a real intensification of work in these two areas. The electric power industry has set up a three-level environmental network, which includes a central electric power environmental monitoring office, 29 environmental monitoring centers at the provincial power management administration or electric power administration level, and 177 power plant-level environmental monitoring stations. We set up a computerized nationwide power-industry environmental protection statistics system which provides scientific data for ministry-level and administration-level environmental management and for the drafting of pollution control programs.

F. A pool of well qualified personnel is needed for environmental protection activities.

In the course of the environmental protection effort, we have also focused on personnel development. We have already created a pool of specialized environmental personnel with respectable abilities in environmental management, evaluation, design, monitoring, research and teaching. Some 1700 persons in the electric power system are already engaged full-time or part-time in environmental protection work, including more than 500 technical people with the rank of engineer or higher. Environmental engineering specializations at two ministry institutions of higher education have sent more than 200 graduates to environmental protection posts at various levels, where they constitute a new environmental-protection force. In addition, a core group of personnel has been sent abroad for study and training, and they should have an excellent effect after their return.

G. Effective environmental protection work in the power industry requires awareness and support on the part of the environmental protection departments at all levels.

During the Seventh Five-Year Plan, the progress of pollution control in the electric power industry was highly dependent on the support of environmental protection departments at all levels. The state environmental protection administration listened to industry views in many of its major policy decisions and was effective in implementing vertical and horizontal coordination, so that the policies and standards that it issued both stimulated the power industry and made allowance for its economic condition. The electric power administrations are the departments to which the power plants are subordinate, but also are the power industry's economic accounting units and the bodies that allocate the power plants' technological modernization funds each year. The environmental protection administrations of ten provinces have now taken cognizance of this characteristic of the power industry and are granting or lending money out of revenues from pollutant disposal fees to the electric power offices, which combine this money with the regular technical modernization funds in order to solve certain pressing environmental problems. Experience indicates that this approach is consistent with the actual circumstances of the power industry and gets the maximum benefit out of limited funding.

II. The Electric Power Industry Environmental Protection Activities Plan for the Eighth Five-Year Plan

During the Eighth Five-Year Plan, 47 million kW of fossil-fired power generating units will be commissioned nationwide; by the end of 1995 the total capacity of fossil-fired generating units in the 50,000-kW class or above will be 120 million kW and annual coal consumption will reach about 380 million tons. The output of pollutants will increase greatly. In certain locations, environmental protection will become the limiting factor in the growth of power production. As a consequence, assuring that the construction of power plants is coordinated with environmental protection and finding ways to convert constraints to stimuli are subjects that must be investigated and solved during the Eighth Five-Year Plan.

In keeping with the State Council's decision to further intensify environmental protection activities, the guiding ideas for environmental protection in the electric power industry during the Eighth Five-Year Plan are: further implementation of the general guideline of "a primary focus on prevention, coordination of prevention and control, and use of integrated management"; constant efforts to assure that pollution control and energy conservation are coordinated with integrated utilization; stringent control of new pollution and accelerated control of existing pollution sources; tighter management, utilization of scientific and technical progress, identification of unused potential, deriving greater overall benefit from investments in environmental protection facilities, and a striving to integrate economic benefits, social benefits and environmental benefits.

The pollution control objectives are as follows.

(1) An average flyash removal rate of 95 percent in the flyash removal facilities of power plants directly subordinate to the power grid, and maximum particulate emissions of 4.6 million tons.

(2) Construction of two or three demonstration coal-fired power plant sulfur dioxide removal projects at power plants burning high-sulfur coal or plants burning moderate- to low-sulfur coal in regions with serious sulfur dioxide pollution.

(3) Integrated utilization of 27 million tons of powdered coal ash, cessation of ash disposal in rivers by all power plants, recultivation or afforestation of full ash dumps, and protection against secondary pollution; construction of demonstration down-mine ash disposal projects pit-head power plants and the development of underground ash disposal.

(4) Universal compliance with disposal standards for power plant wastewater, and construction of closed-cycle boiler ash flush-water systems at 40 percent of all power plants.

(5) Secure sealing of all old power-production equipment containing polychlorinated biphenyls (PCB's).

In order to realize the above pollution control objectives, the following measures must be taken.

A. The use of effective energy conservation measures and the pursuit of energy policies that benefit environmental protection.

The State Council long ago announced the basic policy guideline of "an equal emphasis on development and energy conservation" in China's energy field. This is a mandate to decrease energy consumption and increase economic benefits, but is also one of the basic measures for realizing long-term coordinated development of economic construction and environmental protection. Therefore, during the Eighth Five-Year Plan we must take steps to decrease coal consumption by power plants; new plants must be based primarily on high-performance 300,000-and 600,000-kW units and high-capacity supercritical-pressure units, and in addition, we must accelerate the modernization of low-efficiency generating units at older power plants so that the average annual coal consumption in fossil-fired power plants is brought down to 4 to 5 grams of standard coal per kilowatt-hour.

We must stringently limit small-scale condensation-type fossil-fired power generation and require that all existing small fossil-fired power plants that are able to do so gradually modernize themselves as small heat-and-power plants. We must retire 6.55 million kW of small medium- and low-pressure units: these small generating units use outmoded equipment, have high coal

consumption, and produce serious pollution, and the Ministry of Energy has resolved to take them out of production or convert them to heat-supply stations.

In future environmental evaluations of new projects and of expanded or modernized facilities, the above requirements must be stringently applied.

B. Continue to promote the environmental-protection performance responsibility system.

A new cycle of management contracting has now begun. All contracts and agreements that power management offices and electric power offices sign with power plants must be based on environmental-protection requirements and must specify new management objectives; in the case of key control projects and major environmental problems, they must be based on current circumstances but also take account of long-term concerns and must tighten oversight and inspection and assure that the environmental-protection performance responsibility system is implemented at every level. In order to implement the principle that "environmental protection must be made a compulsory evaluation criterion for enterprise upgrading and for identifying advanced, enlightened units," which was enunciated by the State Council in its "Decision on Further Strengthening Environmental Protection Efforts," we must further strengthen environmental management and see to it that power-plant status-upgrading evaluations and activities based on the "two-enlightened" program produce a further rise in enterprise standards of environmental-protection work.

C. Closely monitor "three-simultaneous" activities.

During the Eighth Five-Year Plan, construction will begun on 42 million kW of new fossil-fired power plants and 47 million kW of new capacity will be commissioned; we must achieve 100-percent implementation of the "three-simultaneous" program, and pollutant emissions of newly commissioned generating units must comply with national or local standards. In order to administer the law strictly, in the future no environmental protection project that has passed its preliminary design review may be changed arbitrarily. If the initial specifications require adjustment, the environmental-protection department of the original reviewing body must give its approval. If design changes are made without authorization, all fees or penalties imposed for the failure of power plants to meet emission standards shall be paid by the units that made the changes.

Oversight of the quality of environmental protection facilities and construction work must be stepped up. Inspections of the "three-simultaneous" activities last year revealed that the wastewater processing facilities of some power plants were of very poor quality, and that even after the work was done over or the facilities were reconstructed, they did not satisfy the "three-simultaneous" requirements and were economically wasteful. Some imported electrostatic precipitators were very poorly installed, so that operating safety was degraded and flyash emissions exceeded the standards. As a consequence, all electric power management administrations and electric power administrations must attach full importance to assuring the high-quality construction of environmental protection facilities and assure that no new environmental problems are left for the operators of the plant to deal with.

D. Use new technologies for effective control of pollutant emissions.

We must begin by conscientiously evaluating and screening existing technologies, disseminate them throughout the country and get them into production as quickly as possible. New research projects must avoid reproducing earlier low-grade developments. The principal objectives of breakthrough projects during the Eighth Five-Year Plan are: first, integrated wastewater management, wastewater utilization, and necessary auxiliary technologies such as protection against pipeline scale; second, demonstration projects on down-mine disposal of powdered coal ash to serve as a source of data for the development of this technology; third, assimilation of the imported stack-scrubber sulfur dioxide removal system that is being used at the Luohuang power plant. Two or three demonstration sulfur dioxide removal facilities designed for coal grades with various sulfur contents should be built during the Eighth Five-Year Plan in order to lay down a good technological foundation for future power-plant sulfur dioxide removal efforts. One approach is to follow the example of the Baima power plant, which used intermediate results from an experimental study of the rotary-spray dry sulfur dioxide removal technique to establish a pilot production-scale installation capable of handing an amount of smoke equivalent to that produced by a 100-kW generating unit and which imported "in-furnace calcium-spray activation and humidification" sulfur dioxide removal equipment and circulating fluidized bed technology.

Newly commissioned generating units with capacities of 200 kW or more and all new units located in municipal areas must make use of highly efficient electrostatic precipitation. All plants that have installed electrostatic precipitators and have a place to dispose of dry ash must use multilevel ash disposal, so that powdered coal ash resources will be rationally utilized.

New ash transport systems must use concentrated transport. Localities that are able to do so must use dry ash removal and dry ash storage, gaining control of the amount of ash-removal water used and of the extent of external disposal. Efforts must be made to increase the condensation factor of cooling towers and to decrease water consumption and pollutant emissions.

E. Find unused potential, increase the operating efficiency of existing environmental protection facilities, and maximize the benefit from the investments embodied in them

During the Seventh Five-Year Plan, despite a scarcity of funds, the state nonetheless made large investments in

environmental protection facilities for fossil-fired power plants. But the facilities that have been commissioned are plagued by numerous problems, the most nagging of which involves electrostatic precipitators. Nationwide, there are now 198 electrostatic precipitator units, accounting for 33.1 percent of total boiler capacity. The electrostatic precipitator facilities for a 300-kW generating unit cost nearly 10 million yuan and consume more than a thousand tons of steel, making them the fourth most important component of the power plant; but at present fewer than 50 percent of them are being managed effectively, which constitutes a major problem. Unskilled management of precipitator units results in their failure to achieve their rated performance, which decreases their efficiency and also is detrimental to safe, stable operation of the generator units. Owing to design and installation problems with the electrostatic precipitator units at the Dawukou power plant, only a small fraction of them went into operation; in those that were put into use, blower abrasion was so serious that the blowers had to be shut down for repairs after less than a month, with the result that the annual energy output was decreased by 100 million kWh. New repairs made last year finally solved the problem. But we should learn a lesson from this situation. Some electrostatic precipitators imported at a high cost in foreign exchange are ineffectively operated, their control rooms are filthy, and the advanced equipment has not produced the expected benefits, resulting in great waste. Steps should be taken to rectify such situations; the work should accorded full importance, and efforts should be made to achieve good performance and to reap benefits from environmental protection investments.

In addition to problems of awareness, there are also problems of organization. The Zouxian power plant's four 300-kW generating units all have precipitators, and one important factor in their effective operation has been the use of a unified system for managing flyash removal and boiler ash handling, based on the distinctive characteristics of electrostatic precipitators and their close relationship to boiler ash handling, placing management efforts on a sound footing. The China Energy Corporation's Electric Power Development Company has imported foreign equipment and monitoring instrumentation; it is to be hoped that it will conscientiously summarize experience and strengthen management, so that all power plants will be able to have top-quality facilities like those of the Dalian and Fuzhou power plants and top-quality operation and management standards will be developed.

F. Make use of the favorable opportunities offered by the policy of reform and opening to the outside and by current international concerns to expand international technical exchange and cooperation in the environmental protection field.

In recent years, when the World Bank, the Japan Overseas Cooperation Fund and other organizations have provided China with loans for the construction of fossil-fired power plants, they have imposed stringent environmental requirements and have made the awarding of the loans contingent on advance approval of the project by international environmental experts. We must learn from the environmental evaluations of the Zouxian and Ezhou power plants in order to obtain good environmental evaluations in support of future loan applications. A major current focus of international environmental concern is global climatic change, one aspect of which is the relationship of energy development and utilization to the environment. China's power industry is primarily coal-based, and this structure will not be significantly changed for a long time to come. As a consequence, the current trends of international environmental concern provide a major incentive for us to use energy conservation measures, to upgrade energy resource utilization, to decrease emissions of such pollutants as sulfur dioxide, carbon dioxide and nitrogen oxides, and to make a contribution to the global environment; the situation also offers us the opportunity to open to the outside world and to seek cooperation. We must take advantage of this favorable opportunity, publicize our power industry's efforts in environmental protection, and make every effort to import advanced foreign technology and funding in order to promise domestic antipollution efforts.

G. Structural matters

Premier Li Peng has frequently emphasized that we must strengthen China's environmental protection structure. Tighter management is impossible without appropriate structures and competent personnel. Environmental protection work by the power management administrations and electric power administrations is expanding steadily, but the current personnel of some offices have an inadequate understanding of the subject. In the structural reform we do not require that organizations at different levels all follow the same pattern, and in particular many offices have the task of streamlining their organization, but we must emphasize that every office must act, in keeping with its tasks, to establish a sufficiently large, competent manpower pool and to have it deal effectively with the increasingly complicated environmental tasks. Otherwise, the offices will not be able to cope with all of their responsibilities. In addition, full use must be made of cooperation between departments. Environmental protection activities involve organizations in the areas of planning, capital construction, plant operations, science and technology, foreign affairs, finance and the like, and we must motivate all of these organizations.

In the next 10 years, energy development will continue to implement the basic guideline of "centering on electric power, with coal as the foundation"; this fact further intensifies our social responsibility in environmental protection. In order to create wealth for future generations and for mankind as a whole, we must overcome

difficulties and strive to perform effective environmental protection work in the electric power industry, raising pollution control efforts in the industry to a new level.

Fight Against Marine Pollution Intensified

HK1402011792 Beijing CHINA DAILY in English 14 Feb 92 p 1

[By staff reporter Xie Yicheng: "Efforts To Curb Sea Pollution Stepped Up"]

[Text] The government is stepping up the fight against marine pollution in the face of increasing shipping along its coastal waters.

The Ministry of Communications, which oversees shipping and port facilities, has asked domestic harbours and shipping firms to invest 72 million yuan ($13.6 million) in onshore disposal facilities for waste from ships during the 1991-95 period, while equipping more ships with pollution prevention devices.

Pollution from ships consists of oily water, bulk chemical waste water, daily sewage and garbage leaking or drained out of cabins.

Yang Hongwen, a ministry environmentalist, said the fresh efforts are aimed at cleaning 32.6 percent of an estimated 30 million tonnes of oily water—the most severe source of marine pollution—up to acceptable environmental standards by 1995.

Of the 26 million tons of oily water discharged by vessels of last year, only 26 percent met State-set safety levels, according to the ministry.

"It would be dangerous to ignore growing pollution from vessels when we plan a 5.7 percent growth of cargo shipment between 1991 and 1995," said Yang.

The ministry will build pilot disposal centres in the ports of Shanghai, Tianjin and Dalian to treat bulk chemical effluent. The number of bulk chemical cargo shipments has been increasing at an annual rate of 10 percent in recent years along with the growing number of petrochemical plants in coastal areas.

Communications departments will also stipulate more regulations to control coastal oil pollution and introduce new technology to cope with oil outflow.

As a signatory of the International Convention for the Prevention of Pollution From Ships, China has worked hard to improve the marine environment, officials said.

All new port construction is geared to prevention and treatment of pollution from marine waste to reduce new pollution hazards.

The government has earmarked 200 million yuan ($37.7 million) to develop waste collection and disposal plants in its 26 main seaports.

Major oil transit terminals such as Dalian, Qingdao, Qinghuangdao and Nanjing boast multi-functional disposal complexes for oily water. Another 100 million yuan ($18.9 million) has been invested in onboard oil-water separation equipment and oil content alarms for tankers.

The input in waste-recycling facilities by port authorities and shipping firms has already yielded an annual profit income of more than 9 million yuan ($1.7 million).

More than 3,000 employees under the State Port Superintendence Bureau conduct annual pollution prevention checks on 6,000 ships carrying Chinese or foreign flags.

Such inspection capacity makes China rank third among the world's shipping nations, behind Japan and Germany.

In 1990, the bureau handled 842 marine pollution accidents, of which 162 happened on foreign ships. This included the spillage of 100 tons of fuel by a Panama-registered freighter.

Government Progress in Environmental Legislation Viewed

OW1702120992 Beijing XINHUA in English 1153 GMT 17 Feb 92

[Text] Beijing, February 17 (XINHUA)—China has made much progress in recent years in making laws to protect the environment.

An official from the State Environmental Protection Bureau said that the laws on environmental protection have formed an independent system with distinct Chinese characteristics.

China began to make laws on environmental protection in 1979 when the government began to attach much attention to the work. That year, the country promulgated "The Law of the People's Republic of China on the Protection of Environment". Since then the country enacted four other laws on environmental protection, 20 administrative decrees and more than 20 rules and regulations concerning environment protection. In addition, the various localities have enacted several hundred local laws and regulations on protecting the local environment and ecology, including Shanxi Province's regulations on the prevention and control of pollution of the Fenhe River and Shanghai's regulations on the protection of the water sources of the upper reaches of the Huangpu River.

Apart from laws, the Chinese Government has also formulated more than 200 standards concerning environment, including nine on environmental quality, 55 on the standards of discharge of pollutants and nine basic standards. These standards have promoted the transformation of the technological processes of enterprises and other technical transformation projects.

Meanwhile, the state has trained a contingent of personnel who are competent in enforcing the laws and regulations.

So far China has become a signature country of more than 20 international conventions concerning environment protection, including the Vienna convention on the protection of the ozone layer and the Montreal protocol on special matters that damage the ozone layer. China is also active in participating in the talks on the proposed international documents concerning the framework convention on the prevention of global warming. The country is now cooperating with a number of international organizations and countries in environmental protection.

Preferential Tax Policy for Waste Recycling Industry

OW1802082292 Beijing XINHUA in English 0808 GMT 18 Feb 92

[Text] Beijing, February 18 (XINHUA)—China's waste recycling industry will continue to enjoy preferential tax policies, according to a State Council circular on further strengthening recycling and utilization of waste materials.

The circular states that supplying and marketing enterprises in charge of wholesale and allocation of regenerated materials can apply to local provincial or regional tax bureaus for business tax reduction or exemption if they face difficulties.

The preferential policies also include reduced income tax from such enterprises, which will last for three years beginning from this year, China ENVIRONMENTAL NEWS reported.

It said the central government considers the waste recycling industry as a major way to salvage resources, reduce pollution and improve economic efficiency.

The State Council circular urged waste recovery and recycling enterprises to acquire an idea of "service and social effect first" and increase the collection of waste materials which are urgently needed by production departments but have a low value, and improve utilization of regenerated resources.

China produces more than 70 million tons of waste materials each year, while the utilization of waste materials is only 25-30 percent, according to statistics from the State Planning Commission.

To make full use of various kinds of waste materials, China's recycling resources systems are making efforts to develop technology for selecting and processing, said an official from the Reproducing Resources Administration Office of the Ministry of Commerce.

Income from waste collecting and processing reached 5 billion yuan (1 billion U.S. dollars) last year, an increase of 2 billion yuan compared with three years ago, according to the resources conservation and utilization bureau of the State Planning Commission.

But there are still 25 billion yuan (4.7 billion U.S. dollars) worth of discarded materials and products not being collected and recycled. This was not only a sheer waste of the country's limited resources but also contaminated the living environment.

There are more than 110,000 salvage stations, 1,200 waste material processing factories and 7,745 sales outlets in both urban and rural areas across the country, while more than 10 Sino-foreign joint ventures have been set up to process and recycle waste.

High-Level China Delegation To Participate in UNCED

OW1902135792 Beijing XINHUA in English 1345 GMT 19 Feb 92

[Text] Beijing, February 19 (XINHUA)—China attaches great importance and will send a high-level delegation to the United Nations Conference on the Environment and Development (UNCED), which is scheduled to be held in Rio de Janeiro, Brazil, in June.

Chinese Premier Li Peng made the announcement at a meeting here this afternoon with a high-ranking government delegation from Brazil, which is headed by Education Minister Jose Goldemberg.

At the meeting, the group presented Li with a letter from Brazilian President Fernando Collor de Mello, inviting him to attend the conference and giving an account of preparations for the conference.

The visitors said that both Brazil and China attach importance to the environment and development.

Li said that China and Brazil, both developing countries, have identical or similar views on the environment and development.

He went on to say that China attaches importance to environmental protection during its process of development and takes environmental protection as a basic state policy.

Noting that environmental issues have become global ones, Li added that China wants to work together with Brazil in making contributions to development and global environmental protection. He also wished the UNCED meeting every success.

Present at the meeting was Song Jian, Chinese state councillor and minister in charge of the state science and technology commission.

Later today, Song hosted a dinner in honor of the guests, who arrived here Tuesday on a three-day visit.

Increased Cooperation in Worldwide Weather Monitoring Planned

HK2202052392 Beijing CHINA DAILY in English 22 Feb 92 p 1

[By staff reporter Liang Chao: "Keeping a Closer Eye on World Weather"]

[Text] As China pledges to open wider to the outside world, Chinese meteorologists have said that they plan to increase co-operation with their international colleagues in worldwide weather monitoring and research.

As part of the effort to improve forecasting capacity, the country is planning to launch a new geosynchronous weather satellite which will be capable of covering the whole East Asia region in the mid-1990s, according to an official in the State Meteorological Administration (SMA).

The new satellite will be the third since 1988, when two meteorological satellites were launched offering services all over the world, Chen Guofan, director of the SMA's foreign affairs department, said.

Following its adoption of the open policy in 1978, China started to open weather information exchange lines covering the planet. A meteorological station was also set up in the south polar region.

According to Chen, China has exported equipment to about 40 developing countries. These are for ground satellite stations, air pollution monitoring, typhoon warnings and weather forecasting. They can also monitor forest fires, floods, typhoons, grain-growing areas, fish movements and sea ice.

The State meteorological centre has become one of the most important regional weather centres and telecommunications hubs under the World Meteorological Organization's (WMO) weather monitoring network.

The government is considering the normalization of weather information exchanges with Vietnam by resuming the Beijing-Hanoi weather circuit under the WMO's Global Telecommunication System (GTS) this year.

And the country has decided to invest 300,000 yuan (about $56,000) to build a background air pollution monitoring station, the first of its kind in the country, in western Qinghai Province, as part of a worldwide network.

Data collected by the station can be used to study conditions in polluted and unpolluted regions.

It will not only help neighbouring countries to appraise the quality of their air but also be open to international scientific circles as a laboratory, when completed.

China has already given more than 3.2 million yuan ($605,000) and $40,000 to the WMO's Volunteers Co-operation Programme (VCP), which is, through offering meteorogical facilities and training personnel, helping the developing countries to contribute to the World Weather Watch (WWW) programme.

"Though China is still a developing country, we will try our best to make more countries understand the significance and necessity of the work. Weather has no nationality," Chen said.

"China has played a positive role in co-operating with meteorology services worldwide since 1972, when its position in the WMO was resumed."

The WMO was the first specialized institute China joined after the country resumed its seat at the United Nations.

Success of Breeding Centers for Endangered Species Noted

OW2602235092 Beijing XINHUA in English 1551 GMT 26 Feb 92

[Text] Beijing, February 26 (XINHUA) - Over the past 10 years, China has invested about 100 million yuan to build 16 wildlife protecting and breeding centers, XINHUA was told here today.

According to conservation officials with the Chinese Ministry of Forestry, the government effort to protect wildlife has withdrawn from the endangered list such species as giant pandas, Chinese alligators, and Manchurian tigers.

In the early 1980s, when the arrow bamboo, a major food source for giant pandas, blossomed, the Chinese Government invested over 20 million yuan to build three giant panda breeding centers in Sichuan and Gansu Provinces.

These efforts have saved the lives of over 100 giant pandas and permitted the birth of 97 panda cubs.

The once endangered Chinese alligators and Manchurian tigers in China have increased their population to 3,700 and 62 respectively.

Meanwhile, in a bid to diversify species, conservationists have reintroduced milu, wild horse, and high-nosed antelope from Japan, Germany, the United States and Britain.

To cater to the needs of these reintroduced wildlife, China has set up breeding centers for them in Beijing, Dafeng in Jiangsu Province, Jimushaer in Xinjiang Uygur Automonous Region, and Wuwei in Gansu Province.

These species are "alive and kicking" at the centers. Today, China has 230 milu, 45 wild horses and 17 high-nosed antelopes.

The world wildlife protection bodies have shown sharp interest in China's wildlife conservation and given China

a great deal of support, according to Qing Jianhua, secretary general of China Wildlife Conservation Association.

Qing hopes his association will receive more international cooperation in wildlife protection and breeding.

Daya Bay Nuclear Plant Receives Final Safety Check

HK2602041592 Beijing CHINA DAILY in English 26 Feb 92 p 1

[By staff reporter Zhu Baoxia: "Reactor Gets Final Safety Check"]

[Text] Chinese environmental officials and experts are giving final scrutiny to the country's largest nuclear power project—the Daya Bay Nuclear Power Station of Guangdong—to decide whether it can open as scheduled.

The National Environmental Protection Agency (NEPA), authorized by the central government to assess the project's environmental impact, is hosting a five-day specialists' conference, which began yesterday in Beijing. The specialists will examine the core-loading safety of the nuclear power station, making sure the project will neither contaminate the environment nor affect local residents' health.

If the environmental and safety report on the Guangdong Nuclear Power Joint Venture Co. Ltd. smoothly passes State specialists' assessment, the first reactor of Guangdong Daya Bay Nuclear Power Station in South China should be commissioned around next October. The second reactor is scheduled for 1993.

Guangdong Daya Bay Nuclear Power Station, about 50 kilometres from Hong Kong, is a joint venture of Hong Kong Nuclear Investment Corp and Guangdong Nuclear Investment Corp. It will have two 900- megawatt pressurized water reactors, parts imported from Britain and France and will cost about $4 billion.

The nuclear power station will be able to generate 10 billion kilowatt-hours of electricity annually, 70 percent supplied to Hong Kong and the rest to Guangdong.

Experts believe the station can help ease Guangdong's power shortage, and benefit its export-oriented economy, and play a positive role in Hong Kong's stability and prosperity.

After the experts' discussion, NEPA will submit its comments to the State Bureau of Nuclear Safety, which will decide whether to grant the project a licence.

s To Improve City Environment

HK2702075292 Beijing CHINA DAILY in English 27 Feb 92 p 3

[Report: "Beijing Sets Sights on a Cleaner City"]

[Text] Beijingers will soon find themselves living and working in a more comfortable and tidy environment—with more trees and cleaner air, less dust, soot and noise and more sanitary toilets.

The municipal government has set 10 tasks for itself in an attempt to improve the environment in the capital city.

And the focus will be put on the control of dust and the treatment of vehicle exhaust, according to Huang Jicheng, an assistant to the mayor.

The 10 tasks include planting trees and grass on all land surface within the Second-Ring Road and on some key streets, and the ground of factories, schools and institutes within the Third-Ring Road, or paving the ground in these areas to reduce dust density.

Each suburban district is also required to upgrade at least five main streets and one to two places where urban and rural districts meet before the end of the year.

The municipal government plans to reduce soot in urban districts and to raise the coverage rate of soot-reduced areas in the suburban districts and counties from 70 to 90 percent.

Another 60,000 households in the city are expected to be supplied with piped cooking gas this year and some 4 million square metres of apartments will be equipped with central heating.

A total of 1.2 million trees and two million flowers are expected to be planted in the urban districts and urban green space wil be expanded by about 3 million square metres.

The second-stage of the Shijingshan waste disposal project is scheduled to be completed within the year; it wil treat about 300 tons of refuse daily. And another 90 air-tight refuse centres will be set up.

The 2,000 farmers' toilets around the Miyun reservoir will be renovated to prevent Beijing's main water source from becoming contaminated.

Envoy Calls on UN To Set Environmental, Economic Agenda

OW0603193392 Beijing XINHUA in English 1911 GMT 6 Mar 92

[Text] United Nations, March 6 (XINHUA)—China called here today for more efforts in dealing with environment protection and economic development, especially the international economic environment that has hindered sustained economic growth of the developing countries.

Speaking at the Fourth Session of the Preparatory Committee (Precom 4) of the UN Conference on Environment and Development (UNCED), Liu Huaqiu, Chinese

delegation head to Precom 4, noted that the close relationship between environment and development, which are inseparable, should always be borne in mind.

"The conference (UNCED) should discuss not only environmental issues, but also related developmental issues, especially the international economic environment which has hindered sustained economic growth of the developing countries," Liu stressed.

Many developing countries, still in the initial stage of economic development, are confronted with the immense task of meeting their people's needs, Liu said, adding that "for these countries, underdevelopment is one of the important causes for their worsening environment. For some it is even the most fundamental cause."

Liu, who is also vice-minister of foreign affairs, said underdeveloped countries are not in a position to protect their environment without steady economic development. In this sense, economic development is the prerequisite for environmental protection.

However, the Chinese delegation head noted that developing countries, while choosing their road to development, should draw lessons from the process of industrialization in the past and keep to the path of sustainable development.

Suggesting the Precom review the principles and purposes of the conference, Liu said "one should look at the question of financial resources and technology transfer from a high plane of common interests of mankind." It is mistaken to regard it as a "favour" granted by one side alone. Developed countries, in helping developing countries participate more effectively in international environmental protection, will not only contribute to the common interests of the entire mankind, but also make a kind of "investment" in their own interests, Liu added.

China maintains that all international legal instruments on environmental protection should have provisions for adequate, new and additional financial resources, Liu pointed out, while expressed his hope to see positive response to the statement on this matter made by the Group of 77 and China Wednesday.

As to who should take the main responsibility for the worsening global ecological environment in the past and at present, Liu said there exists a broad consensus, therefore in terms of undertaking obligations, the principle of common but differentiated responsibility should be followed and the present level of economic development and capability of the developing countries should be taken into full consideration.

"No yardstick should be applied across the board. This principle should also be reflected in Agenda 21," Liu said.

While calling for sufficient attention for those environmental problems which are mainly encounted by developing countries, Liu said that China proposes to set up "a special fund" to finance the environmental protection efforts of the developing countries and help them attain sustainable development, for problems such as desertification, flood and drought mainly affecting the developing countries are "global environmental problems."

Liu emphasized that each country has the right to choose an optimum course for its economic development in coordination with environmental protection in the light of its actual situation and has the right to rationally exploit and utilize its own natural resources."

"These rights must be respected," Liu went on, "any attempt to impose a certain political and economic development model or various unreasonable conditions on others in the process for exploring international cooperation in environmental protection is undesirable and will fundamentally weaken the basis of cooperation."

The Chinese delegation hopes that the aforementioned crucial principles will find expression in the Rio Declaration, Agenda 21 and other documents, Liu noted.

Precom 4, which began Monday, will mainly discuss and prepare Agenda 21 and the Rio Declaration, two main documents to be submitted to the Rio de Janeiro Earth summit in June.

REGIONAL AFFAIRS

Indonesia, Malaysia Sign Accord Stressing Common ASEAN Interests

BK1602052892 Jakarta Radio Republik Indonesia Network in Indonesian 0000 GMT 16 Feb 92

[Text] Emil Salim, minister of state for population and environment, and Law Hieng Ding, Malaysian minister of science, technology, and environment have signed an accord under which ASEAN countries share identical views on coping with the environment issue. Speaking during the signing ceremony in Jakarta yesterday, Emil Salim said that the ASEAN countries had common interests in preventing and coping with industrial, land, sea, and air pollution. For this reason, the two-day fifth ASEAN environment ministerial meeting will be held in Singapore tomorrow to further discuss preparations for the environment summit scheduled to be held in Brazil next June and the nonaligned summit.

Prior to the Brazil summit, the two ministers will also meet during a ministerial conference of developing countries on the environment in Kuala Lumpur from 22 to 29 June 1992. Similarly, Minister Emil Salim saw the need for making ASEAN cooperation the main pillar for further cooperation at the higher level such as the Nonaligned Movement.

ASEAN Environment Ministers Prepare Joint Stand for UNCED

BK2502075692 Singapore THE STRAITS TIMES in English 24 Feb 92 p 26

[Editorial: "ASEAN Takes an Eco-Stand"]

[Text] ASEAN environment ministers arrived last week at a common stand to present to the United Nations Conference on Environment and Development (UNCED) in June. However, doubts remain about whether UNCED will degenerate into a platform for Third World-bashing, and Malaysia considers the threat serious enought to reserve judgment on whether to attend the conference in Rio de Janeiro, Brazil. The paradoxical result is that ASEAN, as Philippine environment secretary Fulgencio Factoran put it candidly, has a united stand on UNCED—except on whether to attend at all. But it would be a shame if Malaysia or any other country felt that it had nothing to gain from attending UNCED. As the ASEAN ministers themselves recognised in their joint stand, UNCED "offers a unique opportunity to put into effect programs for global environmental management and the achievement of sustainable development." It needs the concerted effort of all nations to make it work.

Of course, the North-South divide in the environment debate is genuine and deep. The cost of environmental protection is considerably different for different countries, depending on their stages of development. The North, already at a high level of industrial development, feels it can now explore cleaner ways of doing things. For the South, the priority is still to put its industrialisation on a firm footing. With its stable population, the North is under relatively little pressure to encroach on its remaining natural areas for settlement or exploitation. For the South, with its booming population, the cost of leaving the forest alone gets higher every day. In short, the North, which has done its worst, can afford a righteous attitude now. The South is not so lucky.

Faced with the need to pursue economic development and irrefutable evidence that the global environment is in danger, ASEAN has emerged from its fourth Ministerial Meeting on the Environment with a sound stand. It is based on the principle of sustainable development. This means striving for development without such high ecological cost that the environment's capacity to renew itself is choked and future generations are robbed of a secure existence. ASEAN feels that the development imperative is not sufficiently emphasized in international discussions about the environment. Nor is the issue of equity. As Indonesian minister Emil Salim noted, before the North calls for freezing emissions of greenhouse gases it must face the fact that it emits four tons of greenhouse gases per capita annually, compared with developing countries' mere 0.1 ton per capita. And if the world wants ASEAN countries to take their rain forests out of their development process to serve as a bank for biological diversity, then it seems reasonable that the world compensates ASEAN countries for the forgone earnings.

ASEAN thus argues that any efforts towards protecting the global environment must be matched by equitable measures in developed countries. They must also involve arrangements for providing financial resources and for the transfer of appropriate technologies. It is a stand worthy of being pursued with vigour. But there is a balance to be struck between conviction and belligerence. ASEAN is treading a delicate line. Moves to boycott UNCED, even if only intended to draw attention to the South's concerns, may sound unnecessarily defensive. Worse, they may be infectious, making other developing countries feel they should stay away. Then, the warning that UNCED will end up against the South's interests could well become a self-fulfilling prophesy. ASEAN should instead do all it can to rally support among developing countries for its common stand. Malaysia's hosting of a ministerial conference for developing countries on environment and development in late April is a step in this direction. In the final months of preparation before UNCED, the South needs to be plugged into the process, lest a unique opportunity for global environmental cooperation is lost.

AUSTRALIA

Environment Minister Protests to Japan on Whaling

BK1302150092 Hong Kong AFP in English 0921 GMT 13 Feb 92

[Excerpts] Canberra, Feb 13 (AFP)—Australia will renew efforts to have whaling banned internationally

following sightings of Japanese whalers operating of an Australian Antarctic base, a government spokesman said Thursday.

The Japanese Charge d'Affaires Yasakuni Enoki was called to the Foreign Ministry here to hear Australia's concern about reports of Japanese whaling operations off Antarctica.

The spokesman said Environment Minister Ros Kelly thought it "outrageous" for Japanese whaling ships to operate within sight of Davis Base, on the eastern rim of the frozen continent.

The reports, published on page one of the Melbourne newspaper THE AGE on Thursday, said three Japanese ships were seen this week hunting and butchering minke whales. [passage omitted]

A Foreign Ministry spokesman said that Enoki was told that marine mammals such as whales, dolphins, and porpoises were fully protected under Australian law, and that Australia's long-held position was that all commercial whaling should be banned, the foreign affairs spokesman said.

"Given Australia's strong position and the ecological concerns, we told the Japanese that we would have hoped they would have exercised restraint on whaling, especially in Antarctic waters," the spokesman said.

Australia has opposed whaling under scientific programs when the scale and nature of the killing was considered contrary to the principles of the IWC [International Whaling Commission] moratorium.

Australian citizens and vessels are prohibited from whaling off Antarctica under Australian law, but foreign ships are not affected by the ban.

JAPAN

Government Plans To Accelerate CFC Phaseout

OW1302130292 Tokyo KYODO in English 1150 GMT 13 Feb 92

[Text] Tokyo, Feb. 13 KYODO—Japan plans to accelerate the phasing out of ozone-destroying chlorofluorocarbons (CFCs), following a U.S. decision to ban the chemicals from 1995, officials at the Ministry of International Trade and Industry (MITI) said Thursday.

But the officials said the CFCs include a cleaning agent for metals widely used by smaller industries in Japan and there are some doubts whether the country will be able to ban all the chemicals by 1995, as the United States is demanding.

They said MITI will work out plans on the phaseout for presentation to a meeting of signatories of the 1987 Montreal Protocol scheduled for next November in Denmark.

The plans will be based on a report a ministry advisory group will compile on the subject, the source said.

Under the Montreal Protocol, production and use of CFCs will be banned by 2000-2005. CFCs, which scientists say destroy the earth's protective ozone layer, are mainly used as coolants, propellants for aerosols, and cleaning agents for semiconductors.

Western industrial nations have been calling for an accelerated phaseout of CFCs amid growing public interest in protection of the global environment.

A commission of the United Nations Environment Program (UNEP) is expected to conclude in a report to be published soon it would be technically feasible to ban all CFCs by 1995-1997 in advanced industrial nations.

Bill Includes Jail Terms for Trade in Threatened Species

OW1902142892 Tokyo KYODO in English 1342 GMT 19 Feb 92

[Text] Tokyo, Feb. 19 (KYODO)—Legislation prepared by the Environment Agency would provide for up to a year's jail for people found dealing in flora and fauna threatened with extinction, KYODO NEWS SERVICE learned Wednesday.

Provisionally known as the "Preservation of Endangered Species of Wild Fauna and Flora Bill," it would place a complete ban on transactions, including the import and export, of endangered species, as well as their capture and harvesting.

Tight restrictions would be imposed on development of designated regions, including forest, marshland, and river habitats of such species, according to the bill, a copy of which was made available to KYODO.

It represents the first comprehensive attempt in Japan to frame legislation aimed at protecting wildlife covering not only birds and animals, but also insects, freshwater fish, amphibians, and plants.

The government aims to enact the legislation by April 1992.

The agency prepared the bill ahead of the eighth conference in Kyoto of member countries of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) from March 2 to 13.

The bill's immediate priority is to protect wild plants and animals in imminent danger of extinction by dividing them into three categories of domestically and internationally scarce flora and fauna, and emergency cases.

Of the domestic species, those capable of propagation for commercial purposes are allotted a subcategory known as "designated domestic scarce wild fauna and flora."

These domestic species will be chosen from among a list coordinated and collated by the agency.

Of about 34,000 animals, including insects, on the list, about 650 face an immediate threat of extinction.

Of about 5,300 species of plants, excluding trees, about 890 face a similar fate.

Appendix one of CITES, which automatically bans all commercial trade, applies to about 520 categories internationally, including such animals as the gorilla.

Any trade or transaction involving domestic or international species for purposes other than scientific is in principle banned under the legislation which also makes a point of including within its ambit areas known as the habitats of threatened species.

As well as designating such areas as protected zones, the legislation singles out sites requiring particularly strict protection as "managed zones."

It places tight restrictions on 10 specific types of developments such as land reclamation and quarrying, the cutting of trees or bamboo, the use of fertilizers, and the altering of water volumes.

The legislation also allows for the establishment of a new post of director of preservation of scarce species of wild flora and fauna, to be filled by a member of the agency.

Panel Proposes Government Set Up Endangered Species Protection Areas

OW2402152492 Tokyo KYODO in English 1355 GMT 24 Feb 92

[Text] Tokyo, Feb. 24 (KYODO)—A government advisory panel proposed to Environment Agency Director General Shozaburo Nakamura on Monday the setting up of wilderness areas for the preservation of threatened species of flora and fauna.

The panel proposed that the government establish a list of designated species for protection and place a complete ban on human entry to such species' habitats as well as severely restricting the collection and distribution of such species.

The proposals are the first comprehensive attempt to protect the nation's threatened flora and fauna. Their main thrust is that threatened species cannot be adequately protected unless they habitats are preserved.

The agency will use the proposals to prepare a legislative package, provisionally known as the "Preservation of Endangered Species of Wild Fauna and Flora Bill," for presentation to the Diet in early March.

The proposals are based on the premise that under current circumstances, wild flora and fauna cannot be protected from extinction without urgent human intervention.

It argues that threatened species cannot be treated in isolation, but should also have their habitats set aside for future propagation by banning entry to specified regions which serve as their breeding grounds.

It also calls on Japan to cooperate with other developed nations in carrying out the terms of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)—unofficially known as the Washington Convention—by setting up a data base to collate information on world trade in wild fauna and flora.

The proposals were prepared ahead of the eighth conference in Kyoto of cites member countries from March 2 to 13.

Scientists Working To Reduce Fossil Fuel CO_2 Emissions

OW2602040192 Tokyo KYODO in English 0310 GMT 26 Feb 92

["News Focus" by Ian MacArthur]

[Text] Kurihama, Kanagawa Pref., Feb. 26 (KYODO)—Scientists at Tokyo Electric Power Co.'s Kurihama power plant may be close to a system that would enable Japan to reduce its emission of the "greenhouse" gas carbon dioxide [CO_2] into the atmosphere, while actually burning more coal than at present. In adjoining laboratories inside the power station, 60 kilometers south of Tokyo at the southern entrance to Tokyo Bay, scientists from the two otherwise rival companies, Mitsubishi Electric Corp. and Hitachi, Ltd., are cooperating to perfect a process whereby CO_2 would be fed directly into the ocean.

Excess CO_2 in the atmosphere is said to contribute to the cocktail of gases enveloping the earth, causing the so-called greenhouse effect which many scientists argue is already raising average temperatures around the globe.

They say high concentrations in the atmosphere of CO_2 produced by burning fossil fuels act as an insulating layer which lets warmth from the sun in but blocks the passage of heat outward. The result could be a potentially catastrophic gradual raising of the temperature of the earth, based on the same principle by which the glass of a greenhouse traps beneficial heat.

But scientists say that by extracting CO_2 from the exhaust at the power plant, they may eventually be able to feed it into the ocean where it could lie inert indefinitely or even benefit marine plants such as seaweed which convert CO_2 into oxygen. The oceans serve as CO_2 "sinks," but under natural conditions the amount of CO_2 they can absorb is limited.

Inside the laboratories at Kurihama, white coated scientists are duplicating the conditions which prevail deep under the ocean in experiments which are expected to last until March 1995. Using a small television monitor,

they are able to watch as purified CO_2 emitted from the plant is injected in liquefied form into artificial sea water at pressures up to 320 kilograms per cubic centimeter, duplicating those at depths of around 3,000 meters. Under these conditions, the injected CO_2 takes on the consistency of a jellied sherbet and precipitates to the bottom. But it is what happens after that which most concerns the scientists.

If the CO_2 were to settle permanently on the ocean bed, the scientists may have found a way to dispose of the gas indefinitely. But the real problem as far as the scientists at Kurihama are concerned is determining the propensity of the CO_2 pumped into the ocean to remain there. If the gas could be trapped permanently under the ocean, it would cease to be a greenhouse gas and this would allow a breathing space while other less problematic forms of energy are brought on line.

Similar experiments are underway at several other power plants around Japan, but the Kurihama one is the only one working with CO_2 derived from coal. Of all the fossil fuels, coal is the major culprit in contributing to global warming because it produces the most CO_2.

By conducting their experiment at the Kurihama power plant, which burns a viscous black tar-like coal-oil mixture, the researchers aim to show that coal, a cheaper source of heat than oil, still has a future. This has important implications for coal exporting countries like Australia which supplies 50 percent of the Kurihama plant's coal thanks to its purity and low cost. Coal's future as an energy source is under threat from a growing push among conservationists and governments to curb worldwide emissions of CO_2 and other greenhouse gases.

Japan and European nations have undertaken to limit CO_2 emissions, but the United States has so far shown a reluctance to introduce limits, particularly during a presidential election year.

The issue of CO_2 and other greenhouse gases is likely to be a major topic at the United Nations Conference on the Environment and Development in the Brazilian city of Rio de Janeiro in June. That conference—commonly known as the "Earth Summit"—may result in an international agreement calling for concrete steps by nations to cap global emissions of CO_2, but any such agreement can only be effective if major CO_2 emitting nations, like Japan, the U.S., China and the EC, conform.

In related experiments at another laboratory in Chofu, western Tokyo, scientists are searching for marine plants which would most efficiently use photosynthesis to absorb CO_2 pumped into oceans. Looking to an almost science fictional future, success in this experiment could even lead to more productive seaweed farming, although Tokyo Electric's public relations official Junji Imaizumi says there is no way even the most highly absorbent seaweeds could cope with the large amounts of CO_2 which giant power plants emit. Nor do the scientists yet know the ultimate effects of the CO_2 on the undersea environment.

Imaizumi said both sets of experiments are still in their early stages and no one at Tokyo Electric is even thinking about the seaweed farming connection although they are aware of the possible application.

SOUTH KOREA

Vehicles Emitting Pollution To Be Recalled

SK0902032692 Seoul THE KOREA TIMES in English 9 Feb 92 p 3

[By staff reporter No Chun-hon]

[Text] A vehicle recall system is being introduced in Korea for the first time in order to reduce the excessive emission of harmful gases and hold manufactures responsible for implementing corrective measures.

Under the system, automakers who are found to have produced cars which give off quantities of hazardous gases in excess of the permissible limit must recall all vehicles of the same model and cover cost of repair and related expenses.

The recall plan has long been in practice in many industrialized countries including the United States, Canada and Japan.

According to the Environment Ministry, random tests will be conducted on four models this year to check for the excessive emission of such gases as carbon monoxide and sulfur dioxide.

The four models are Hundai's Sonata, Daewoo's LeMans, and Kia's Concord and the imported Ford Mercury Sable sedan. The variety of models will be expanded year by year.

The warrant period for cars registered after January 1990 is set at five years or 80,000 kilometers for the anti-pollution system, providing unprecedented safeguard for motorists, environment officials said.

The cost and manpower required to recall huge numbers of cars are so enormous that manufacturers will have to consider the alternative of producing defect-free cars, experts said.

Vehicle owners would be contacted on a random basis after a survey and their cars would be subject to extensive environmental and mechanical testing for a 10-day period, they explained.

The Environmental Management Corp., which is charged with taking care of the administrative paperwork, will make all the necessary arrangements so that the motorists can be fully compensated for the inconvenience.

The officials said the scope of the compensation includes deductions for insurance policies, taxes, vehicle transportation and car rental, all of which will be paid in cash by the manufacturers.

In addition, it is mandatory for the automakers to recharge the vehicle, replace the oil and air filters, spark plugs and engine oil at no charge, they elaborated.

Should the vehicles be found to be violating ministry-set limits, the manufacturers would have to recall all cars of the same model and conduct individual tests and repairs, naturally at their expense.

Consumer protection agencies have long charged that automakers are getting away with loose production methods and poor quality control and passing the buck to motorists.

"In Korea, most motorists are not exceptionally knowledgeable about the workings of vehicles and don't think twice about covering the repair cost, not doubting that perhaps there was something wrong with the car to begin with. It is high time that policies such as the recall system are implemented so that automobile manufacturers can become more responsible about what they produce," one consumer expert said.

The system not only affects passenger cars but those which operate on liquefied petroleum gas (LPG) although the period of warranty varies with the loading capacity.

From 1993, diesel-fueled vehicles will also be included in the recall system the officials said.

The initial draft for the system was drawn up in 1990 in face of worsening environmental conditions, a large portion of which is attributable to the operation of motor vehicles.

An analysis by the ministry that year showed that cars were responsible for 20.2 percent of all sulfur gases in the atmosphere and 94.6 percent of hydrocarbons.

Automobiles were also accountable for 75.7 percent of nitrogen dioxide, 58.8 percent of total solid particulates (TSP), indicating that they were the main causes of air pollution.

Another noteworthy fact is that cars are not only the prime causes of air pollution, they also give off some of the potent gases, such as carbon monoxide, environmental experts added.

The most positive aspect of the system, they noted, is that it promises to not only reduce air pollution, it encourages manufacturers to take the proper initiative if they want to avoid incurring huge repair cost and cut in on production time, the ministry officials observed.

They noted that in Japan, a manufacturer faces up to seven years in prison and fines of up to 50 million if they are found to have been negligent in production and quality assurance procedures which result in excessive air pollution.

Republic of Korea Applies To Join Montreal Protocol

SK2702044692 Seoul YONHAP in English 0321 GMT 27 Feb 92

[Text] Seoul, Feb. 27 (OANA-YONHAP)—South Korea applied Thursday to join the Montreal Protocol, committing itself to reducing its chlorofluorocarbon (CFC) consumption rate to nearly half within next couple of years.

The application will be delivered through the South Korean representative at the United Nations to the U.N. Secretariat, according to the Foreign Ministry.

Official membership will come three months later on May 27, just before the protocol members can begin banning imports of all CFC- using products from non-members.

The Montreal Protocol on substances that deplete the ozone layer, adopted in 1987, now has 73 adherents. They originally sought to reduce CFC comsumption to the 1986 level by the end of 1994, reduce it by half from 1995 to completely ban their use from the year 2000.

The United States and the European Communities, however, are proposing that member countries push up the date of complete CFC ban to 1995.

South Korea hopes to join the protocol under a special provision which allows it up to 0.5kg per capita consumption instead of the required 0.3kg.

South Korea's per capita CFC consumption is expected at around 0.9kg this year.

MALAYSIA

Malaysia Lists Conditions for Earth Summit Attendance

BK1702063692 Kuala Lumpur BERNAMA in English 0515 GMT 17 Feb 92

[Text] Singapore, Feb 17 (OANA-BERNAMA)—Malaysia will only participate in the United Nations Conference on Environment and Development (UNCED) if there is sincerity in finding solutions.

Science, Technology, and Environment Minister Law Hieng Ding said Malaysia wanted to participate in the Rio de Janeiro conference "if it is meaningful."

Law, here to attend the two-day 5th ASEAN Ministerial Meeting on the Environment (AMME), told reporters that UNCED or "Earth Summit" should be a forum to find solutions and not one that would lead to confrontation.

He said Malaysia's participation would depend on whether there was any change in attitude in the approach of developed countries towards developing countries.

Law cited pressures mounted by certain developed countries on tropical countries to preserve their rainforests in order to save the world and the Penan [tribe] issue as examples of the "confrontational" approach.

He said the Penan issue was blown out of proportion by the so-called "environmental activists" from developed nations in the name of "human rights" and "environmental protection."

NEW ZEALAND

Timber Importers To Limit Topical Wood Purchases

BK1102122592 Hong Kong AFP in English 0825 GMT 11 Feb 92

[Text] Wellington, Feb 11 (AFP)—New Zealand's timber importers announced Tuesday they will in future only buy tropical timber logged from sustainably managed forests.

The Timber Importers Association statement won cautious approval from environmental groups.

"As a group we are extremely concerned at the rapid loss of tropical rainforests worldwide," association president Bruce Nimmo said.

He said members of the association, which represents most timber importers, would only buy timber from forests "which are managed on a sustainable basis, and forests where logging is conducted with the least possible damage to the environment."

The group would not recommend tropical timber where an alternative with equivalent qualities can be substituted, though it did not support a ban on imported tropical timber, Nimmo said.

"A ban would do nothing to enhance the value of rainforests or ensure their survival. It won't solve the social and economic problems which are at the root of uncontrolled rainforest destruction," he said.

New Zealand imports of rainforest timber amounted to 0.03 per cent of world trade.

Greenpeace and the World Wide Fund For Nature (WWF) welcomed the policy but felt it did not go far enough.

"The term 'sustainably managed forests' sounds good but is misleading," Greenpeace Tropical Forests campaigner Jacqui Barrington said. "What the importers mean is sustaining the yield of timber; what we mean... is sustaining the incredibly intricate web of life which the tropical rainforest supports and which industrial logging is decimating. World Wide Fund for Nature scientist Sue Miller said the WWF was pleased to see industries responding to environmental issues.

TAIWAN

Kuomintang Backs Inclusion of Environmental Articles in Constitution

OW1402091092 Taipei CNA in English 0743 GMT 14 Feb 92

[Text] Taipei, Feb. 14 (CNA)—Environmental protection will, for the first time, be given the same policy priority as economic, scientific and technological development if a Kuomintang [KMT] proposal wins national assembly approval.

The KMT task force on constitutional amendments reached an "initial conclusion" on several basic national policies Thursday, KMT spokesman Chu Chi-ying reported.

Chu said the task force, headed by Vice President Li Yuan-zu, concluded that the nation should encourage scientific and technological development, upgrade industrial levels, and strengthen international economic cooperation.

"Environmental and ecological protection should be given equal importance to economic, scientific and technological development," the KMT task force asserted.

Chu said the task force decided to keep intact the first chapter of the Constitution regarding basic national policies but add to it several articles in order to "meet current needs."

Other new articles the task force proposed include government assistance to the disabled and guarantees of rights and interests of aborigines.

On the division of power between the central and local governments, the task force proposed that provincial governors, city mayors, and county magistrates be elected by provincial, city and county residents respectively .

Task force members, however, suggested that elections of Taiwan Province governor and Taipei and Kaohsiung mayors should not be held until "relevant laws" have been passed.

Because elections for the three posts will require changes in the constituencies as well as the terms of office of some county magistrates and city mayors, the Interior Ministry should make "comprehensive planning" for such elections, the task force was quoted as explaining.

Taiwan Delegation To Attend Earth Summit

OW1702080092 Taipei CNA in English 0733 GMT 17 Feb 92

[Text] Taipei, Feb. 17 (CNA)—A Taiwan delegation will participate in an environmental protection meeting, dubbed the "Earth Summit," in June in Brazil.

The meeting will discuss international cooperation in controlling carbondioxide emissions and the use of ozone-depleting chemical chlorofluorocarbons (CFC) in industrial production.

The delegation will consist of experts from the Industrial Development Bureau, the Commission of National Corporations, the Environmental Protection Administration, the Industrial Technology Research Institute, the Taiwan Power Company, the Chinese Petroleum Corp., and other organizations.

The Ministry of Economic Affairs will hold a meeting Tuesday to exchange views on how to limit the use of CFC and to control emissions of carbondioxide in Taiwan.

Duty-Free Import of CFC Recycling Equipment Considered

OW1802085792 Taipei CNA in English 0759 GMT 18 Feb 92

[Text] Taipei, Feb. 18 (CNA)—The government is considering exempting chlorofluorocarbons (CFCs) recycling facilities from import tariffs as part of its efforts to reduce emissions of ozone-depleting chemicals here, an Industrial Development Bureau (IDB) official reported Monday.

The official said the IDB has urged the Ministry of Finance to stop levying tariffs on CFC-recycling equipment to encourage imports of the high-tech facilities which Taiwan still cannot produce.

The Finance Ministry is expected to accept the proposal since it is an established government policy to join a global movement to phase out CFCs for the sake of environmental protection, the official noted.

The tariff exemption will hopefully encourage local companies to import CFC-recycling equipment so as to help cut emissions of chemicals that can eat away the earth's stratospheric ozone layer which shields mankind against the sun's hazardous ultraviolet rays, the official explained.

CFCs are widely used in almost every society. They are used in refrigeration and air conditioning, as cleaning solvents in factories and as blowing agents to create certain kinds of plastic foams.

The multinational Montreal Protocol signed in 1987 originally called for a total phaseout of CFC usage by the year 2000. The deadline is now likely to be moved up to the end of 1995 as recent studies show the earth's ozone layer is being eaten away by man-made chemicals far faster than expected.

The IDB official said that although the Republic of China is not a contracting party to the Montreal Protocol, it will abide by world rules.

In preparation for the phaseout of CFC production, the government-funded Industrial Technology Research Institute (ITRI) said Monday that it plans to introduce into Taiwan foreign-developed technologies needed to manufacture substitute chemicals.

An ITRI official said that many CFC substitute chemicals have been developed in the past few years. These new chemicals can be used in refrigeration, air conditioning, cleaning and foaming, but they do not deplete the earth's ozone layer, the official stressed.

Major foreign chemical companies that have successfully developed technology for producing CFC substitute chemicals are willing to sell their expertise, the official said. The ITRI is negotiating with them on possible deals and final results are expected to be reached in the near future. The ITRI will then transfer the technology to interested local manufacturers for the mass production of the new chemicals, he added.

Cabinet Soon To Approve Fourth Nuclear Plant

OW1902084292 Taipei CNA in English 0823 GMT 19 Feb 92

[Text] Taipei, Feb. 19 (CNA)—The cabinet is likely to soon approve a long-stalled Taiwan Power Company plan to build a fourth nuclear power plant on the island, a senior executive with the state-run enterprise said Tuesday.

The Taipower official spoke after attending a cabinet breakfast meeting on the much-expected construction plan.

Taipower sent two extensive reports on the feasibility and environmental impact of the proposed nuclear power plant to the cabinet last month for further review, the official said.

Both reports, prepared by nuclear energy and environmental engineering experts, confirm the feasibility and safety of the long- talked-about plant, the official said.

Since Premier Hao Po-tsun has on many occasions reaffirmed the necessity of developing nuclear power generation here, the Taipower executive said he is convinced that the cabinet will support the much-delayed plan.

Construction on the fourth nuclear power plant has long been stalled by strong opposition from some lawmakers, environmentalists and residents in the proposed plant site in Kungliao, Taipei county.

Taipower has launched intensive publicity campaigns in the Kungliao area during the past few years and such efforts are paying off, the executive said. "Kungliao residents have become more supportive of our plan," he added.

All officials present at Tuesday's breakfast meeting, including those from the Ministry of Economic Affairs,

the Commission of National Corporations and the Atomic Energy Council, favored an early completion of the plant to help relieve power shortages here, the Taipower executive reported.

Premier Hao, who chaired the meeting, stressed that Taipower must ensure that the new nuclear power plant poses no threat to life and environment there. "Safety must consistently be our first and foremost concern in nuclear power generation," he added.

Advisers to the cabinet-level Council for Economic Planning and Development (CEPD) will meet Wednesday afternoon to further discuss the plan.

If all CEPD advisers, most of whom are noted economists and leading industrial and business executives, endorse the plan, Vice Economic Affairs Minister P.K. Chiang said, the cabinet is expected soon to give a "go-ahead" to the construction of the new plant.

Chiang asserted that nuclear power generation is a world trend. Japan has decided to build a new nuclear power plant annually over the next two decades to meet its ever-growing demand for electricity and to reduce environmental pollution.

Chiang said that major countries around the world have agreed to control carbon dioxide emissions in order to prevent global warming and to protect the earth's stratospheric ozone layer. The United Nations is scheduled to meet in June to discuss the issue.

Nuclear power generation, which causes little pollution to the environment, currently accounts for 28 percent of Taipower's installed capacity, far lower than thermal power's 58.1 percent share.

Since thermal power plants cause heavy pollution, Chiang said, the country will gradually reduce its reliance on this type of electricity generation to meet increasingly strict world requirements on carbon dioxide emissions.

Government Takes Steps To Be Contracting Party to Montreal Protocol

OW1902084392 Taipei CNA in English 0813 GMT 19 Feb 92

[Text] Taipei, Feb. 19 (CNA)—The Ministry of Economic Affairs Tuesday established an ad hoc group to help achieve the goals of the 1987 Montreal Protocol in Taiwan, an official of the ministry said.

The group, dedicated to resolving problems in connection with the depletion of the ozone layer and the warming-up of the earth, will constantly provide domestic manufacturers with up-to-date information on how to control the use of chlorofluorocarbons (CFC) and encourage them to use the substitutes for the ozone-depleting chemical.

The ad hoc group also plans to sponsor a series of seminars on CFC control, he said.

The purpose of the group is to make Taiwan eligible to become a contracting party to the Montreal Protocol.

The ad hoc group, headed by Deputy Economics Minister Li Shu- jeou, is composed of representatives from the industrial development bureau, the Board of Foreign Trade, the Atomic Energy Council, the Commission of National Corporations, the Taiwan Power Company, the Chinese Petroleum Corp., the Industrial Technology Research Institute, and other organizations.

THAILAND

Forest Encroachment Increasing Despite Logging Ban

92WNO295A Bangkok NAEO NA (LOK THURAKIT SUPPLEMENT) in Thai 23 Jan 92 pp 9, 10

[Excerpts] Sources from the Committee for National Policy-Making on Forestry disclosed that the Forestry Department has proposed to classify 25 more provinces in the zoning of the department's land to be used as resources. The proposal will be submitted to the Committee for the National Policy-Making on Forestry at the meeting on 23 January. If approved, it will be further submitted to the cabinet.

For the remaining 19 provinces, the Forestry Department will complete the zoning by February so it will be implemented by the present government. It is feared that if the government changes before the proclamation is announced, the Forestry Department will have to start the whole process all over again if the new government has a different policy on forestry.

Details on the zoning of forest land for specific use for 25 provinces are shown in the table. These 25 provinces have been designated 354 forests. The total of all the forest land is 39,109,661 rai. An area of 22,329,157 rai or 58.12 percent is designated as conserved land, 14,508,156 rai or 37.10 percent as economic land, and 1,872,348 rai or 4.78 percent as agricultural land.

Sources revealed that since the ban of logging concessions and the closing of forests all over the country at the beginning of 1990, forest encroachment and deforestation has increased further than when logging concessions were allowed. In 1989, for example, deforestation was only 78,658 rai, two ngan, 80 square wa, compared with 127,484 rai, one ngan, 81 square wa in 1990, but increased to 171,148 rai, three ngan, 71 square wa in 1991.

The solution to the problem of forest encroachment and deforestation will be discussed at a forestry meeting at Phrae among the five northern provinces from 25 January to 26 January.

Sources revealed that after some discussion, the officials involved from the Forestry Department, Fisheries Department, and the Committee for Royal Decrees, agreed with the cabinet's resolution passed on 23 July 1990 that bans the use of mud flat forest. However, they asked that those awarded logging concession prior to this resolution be allowed to continue working until the expiration date. Those who applied for concession permits in the mud flat forests before 23 July 1991, should be granted the permits for a grace period of no later than 31 December 1994. The offices involved in the permit granting have been asked to wrap it up within three months and present it to the Committee of National Policy-Making on Forestry for approval, and later to the cabinet.

"When the expiration date, 31 December 1994, comes, there will be no renewal of permits. After the mentioned date, those already under the grace period but who refuse to leave the mud flat forests will be prosecuted at once."

Use of CFC's To Be Phased Out by 1997

BK1203025592 Bangkok THE NATION in English 12 Mar 92 p B14

[Text] Thailand is aiming to phase out completely the use of chlorofluorocarbons (CFCs) in the country by 1997 or 1998, more than 10 years ahead of the schedule set by the Montreal Protocol.

The Montreal Protocol fixes the year 2000 for the total phaseout of CFCs, the chief agent of ozone destruction. For developing countries such as Thailand, however, the schedule was extended by another 10 years, which means the nation has to cease using CFCs by 2010.

Under the Protocol, CFCs must be reduced by 50 percent of the amount used in 1986 by 1995 and 85 per cent by 1997. Use of this ozone-eating chemical between 1995 and 1997 by developing countries must not exceed 0.3 kilogramme per head yearly or about 20,000 tonnes per year for Thailand.

CFCs are man-made chemicals which destroy the ozone layer—a shield against the sun's hazardous ultraviolet rays that can cause cancer.

Wira Mawichuk, the Industrial Works Department director of the Hazardous Substances and Chemical control division, said Thailand normally uses about 8,400 tonnes of CFCs per year, considered a small amount compared to the total 1.4 million tonnes worldwide.

However, Wira said the Industry Ministry has a policy of not increasing the use of CFCs above this level while trying to reduce the amount in coming years so as to achieve the total phaseout target in 1997 or 1998.

Wira said the Industry Ministry feels that if Thailand is quick to comply with calls made in the Montreal Protocol, it will be in a better position than slowmoving countries regarding possible trade bans on products using CFCs that may be imposed by importing nations in the future.

Wira said that as several manufacturers may stop producing CFCs soon, Thai consumers should be aware of possible shortages of this chemical and refrain from buying refrigerators or air conditioners having CFCs as a refrigerant.

According to Wira, one substitute for CFCs is the hydrofluorocarbon (HFC) which does not contain chlorine, thus making the chemical harmless to the ozone.

However, he said the HFC production cost is five-fold higher than that for CFCs.

Wira added that chemical replacements for CFCs can be used only in the manufacture of some products such as integrated circuits.

According to Wira, the Industry Ministry is now holding a three- day meeting in Bangkok with officials from Japan's Ministry of International Trade and Industry (MITI) and the U.S. Environmental Protection Agency (EPA) to discuss ways to reduce the use of CFCs.

He said Thai authorities will ask their foreign counterparts during the meeting, being held from March 11 to 13, for cooperation in helping push Japanese and US manufacturers in Thailand to cut the use of CFCs.

BULGARIA

Environment Minister Reviews Ministry's Current Achievements

AU1102211692 Sofia BTA in English 2013 GMT 11 Feb 92

[Text] Sofia, February 11 (BTA)—The confrontational tone between Bulgaria and Romania on environmental problems has been overcome, according to the Bulgarian minister of the environment, Mr. Valentin Vasilev. The indices of the purity of the air over the city of Ruse are improving, Mr. Vasilev said at a press conference today. For many years Ruse was gassed by the chemical works in Giurgiu and this was at the root of the environmental conflict between the two countries. In December 1991 Bulgaria and Romania signed a convention on environmental protection. The composition of the intergovernmental commission to work on its implementation has already been agreed upon. The setting up of working groups between the interested towns on both sides of the border has also begun.

Reporting on the work of the ministry in the first 100 days of the new government, Mr. Vasilev said that it had concentrated on the preparation of the conventions on Balkan and Black Sea environmental cooperation. According to experts these conventions will be completed soon.

The ministry held bilateral talks with almost all European states on the problems of environment protection.

In March Bulgaria is to sign two conventions in Brussels—on transborder pollution of water resources and on industrial accidents.

After signing the financial memorandum with the PHARE programme this country will get an additional 15 million ecu for perfecting the control systems which the ministry will set up in 16 regional inspectorates throughout the country. This sum does not include the funds granted with the first tranche within the framework of the PHARE programme for four monitoring stations in the cities of Sofia, Ruse, Varna and Burgas.

A meeting with representatives of the European Community in connection with Bulgaria's association approved Bulgaria's views, stands and strategy in environment protection, Mr. Valentin Vasilev said.

Government To Cease Uranimum Production

AU1802123292 Sofia BTA in English 1114 GMT 18 Feb 92

[Text] Sofia, February (BTA)—The government yesterday decided to stop uranium production. In the last few months this was the subject of heated arguments in the press.

Last year Ivan Pushkarov, minister of industry, trade and services in the former cabinet, ordered an expert examination at the rare metals company. It established that production costs exceeded sales by 1,176 million leva in the 1976-1990 period. The experts' assessment of the uranium industry was negative.

Bulgaria's uranium deposits are of a lower quality than commercial deposits worldwide. They are hard of access, limited, unequally distributed and have a low uranium content. At the current rate of extraction the deposits will last 15 years but the cost of 1 kg is too high. The content of uranium 235 and 238 in this country is only 0.015 per cent, while the limit for exploitation of deposits in most countries is 0.03 per cent.

Hundreds of tons of uranium were stockpiled after the world demand for uranium dropped and trade with the former Soviet Union - the major user of Bulgarian uranium, stopped. The production cost of Bulgarian uranium is 60 dollars per kilo, while on the world market it costs between 22 and 23 dollars.

In connection with the Council of Ministers' decision OTECHESTVEN VESTNIK today carries an article headlined "Uranium Production About To Stop." The author writes about the characteristics of uranium production in Bulgaria and the problems which will emerge if it stops.

In the first place there is a danger of pollution of the soil with sulphuric acid used in uranium extraction. The second danger is that the water in the mines may rise thus becoming another source of pollution.

The third problem is that many people - about 12,000 according to the author, will lose their jobs. She suggests that they should take part in the dismantling of the equipment and in technical recultivation. Miners could be retrained for the coal mining industry where there is a labour shortage.

HUNGARY

Environment Minister Explains Policies, Tasks

AU1202104892 Budapest in Hungarian 8 Feb 92 p 9

[Interview with Sandor K. Keresztes, minister for environmental protection and area development, by Correspondent Dezso Pinter; place and date not given: "Every Compromise Can Be Turned Into a Political Matter"]

[Excerpts] [passage omitted] [Correspondent] Please explain your title, because environmental protection and area development do not at all suggest coinciding directions. Is there an innate contradiction here?

[Keresztes] Only appearances might suggest a contradiction here. Our aim was the creation of a ministry that deals with the whole environment that surrounds people. Both the natural and the physical—that is the constructed—environment belong here. As a result, according to our original plans, we included the protection of nature and of historic buildings, and architecture

administration in our activities. I know very well that there are many false ideas about area development. Naturally, area development also existed in the previous regime. However, it was thought that it did not have to be dealt with and the market would solve the problems as they arose. The planned economy threw a particular light on this attitude and I am not surprised that misunderstandings persist.

[Correspondent] What do you understand by area policy?

[Keresztes] The territorial optimization of monetary resources and establishments, in such a way that area policy ensures the balance of the economy and society, as well as of the environment. [passage omitted]

[Correspondent] In the West, ministers for environmental protection are often called the in-built opposition of government. How do you see this approach?

[Keresztes] Differently. My duty is to direct the government's attention to the environmental dangers before it makes a decision. I try to make sure that the justified needs of society and environmentalists are not left unknown before decisions are made. I must take on conflicts, however. I cannot be guided by anything but trying to achieve compromises. Our ministry can only achieve results in the government through finding and patiently presenting the common interests; there is no point in constant confrontations. [passage omitted]

[Correspondent] What kind of personal relations do you have with the opposition?

[Keresztes] I do not have any particular conflicts with them, or I should rather say that I get at least as much criticism from my own party, the Hungarian Democratic Forum, and from the other two coalition parties as from the opposition. This can also apply to the support. In the Parliamentary Environmental Protection Committee, the criticism levied by Mihaly Raday (Alliance of Free Democrats), and Janos Papp (Federation of Young Democrats) often has a positive influence on the government's decisions. I find it natural to be criticized by the government coalition and the opposition in equal measure. [passage omitted]

[Correspondent] You have often voiced your opinion that environmental protection movements are still seen as considerable political factors. At the same time, compared with the past, these movements have become quiet. Why?

[Keresztes] Certain people have formed illusions. The members of environmental movements that played a role in the change of the regime, represented such a great influence that they were automatically given roles in the government. Let us look at the example of Bos-Nagymaros. The Danube Circle and other movements were fighting for the change of the regime at the same time. Some of the representatives of these movements were given positions in the government, and the movements thought that the Bos-Nagymaros issue would automatically be resolved because their members were now participating in decisionmaking. However, nothing is automatic. It has to be realized that the movements of the day will always be in opposition to the government of the day. The self-organized public movements always use and try to exert purely ecological interests. Environmental interests can prevail to a varying degree in the government's decisions, which observe the interests of the whole society. [passage omitted] I must be self-critical and say that we have not yet managed to establish a linkage between the ministry and ecological public movements. The many hundreds of movements are fighting for very different aims. The movements are divided and the ministry cannot and does not want to treat many hundreds of organizations in the same way. This is a political problem for the minister and a professional problem for the ministry workers. We have not found a solution yet. [passage omitted]

[Correspondent] When and how will you decide whether we need a new power station?

[Keresztes] From an environmental protection point of view, the government has further developed its energy policy. Greater energy efficiency and the further use of alternative energy sources are the solution; constructing a new basic power station, if it is necessary, is only a secondary solution. After assessing the overall economic, political, and environmental points of view, it can be decided whether the good solution is a coal-fired, gas-fired, or nuclear power station. In my view, it is important for the government to arrive at a decision based on the widest possible public consensus, and the professional viewpoints of the Industry Ministry, the country's load-bearing capacity, and society's ability to accept and endure should all be taken into consideration. Organizing a debate is an enormous task. We must not pass over this problem by any means, especially since the government understands the political importance of the issue. As is confirmed by my West European colleagues, the coordination process can take two to three years.

[Correspondent] It is not possible to know yet how effective this public debate will be. However, it is certain that the often-mentioned lobbies will start a lot of activity—regardless of what the interests of environmental protection are. It is possible that the lobbies will justifiably be able to refer to governmental interests. Do you have bad premonitions?

[Keresztes] When the government discussed our ministry's proposal on Hungary's environmental conditions, the environmental activities of all other ministries were also discussed. The problems can only be solved at the place they emerge, and we prepared a short-term and a medium-term plan at the government's request. This plan contains the measures we think the various ministries should take to reduce or prevent environmental damage. The government accepted our plan and obliged the ministries to draw up their own environmental

protection programs. This work is in progress just now. Environmental points of view can be built into all areas of all ministries. The other guarantee is legislation.

[Correspondent] What could be the first result that can be measured and controlled by anyone?

[Keresztes] Although the decisions were not directly made out of environmental considerations, governmental measures transforming the economic and industrial structure have been started. The most polluting and highest energy-consumption branches of industry are being removed and, as a result, we can already perceive the improvement in the quality of the air in Hungary. The limitations imposed on two-stroke-engine cars are well known, we will introduce the green card, and we are expecting a lot from the environmental levy introduced in the price of gasoline. This amount would not be part of the budget but, in a guaranteed and controllable way, it would be used to abolish or reduce the environmental damage caused by the product. I have no doubt that we are facing a great parliamentary debate, and we should also somehow win the trust of the very suspicious public. This system has already been established in some places in Western Europe. When it operates well, rather than increasing the burden on society, it increases the costs of the users in a very fair way. At any rate, we hope that our reasoning will be accepted.

REGIONAL AFFAIRS

Amazon Pact Presidents Sign Manaus Declaration

PY1402225892 Sao Paulo O ESTADO DE SAO PAULO in Portuguese 12 Feb 92 p 13

[Manaus Declaration signed by the Amazon Pact presidents on 10 February in Manaus, Brazil]

[Text] Meeting in Manaus on 10 and 11 February 1992 with the purpose of evaluating the topics of the UN Conference on Environment and Development, the presidents of the Amazon countries have adopted the following:

Declaration of Manaus on the UN Conference on Environment and Development.

1. We are convinced that a planet that is environmentally healthy must equal a socially and economically just world. It is essential that the manner and models of development and the guidelines of untenable consumerism must be transformed in order to achieve this objective.

2. In our countries, the prerequisite of economic and social development must run parallel to the preservation and protection of the environment through the promotion of strategies for the sustainable use of natural resources and through respect for the right of the people to a better quality of life. Consequently, we reaffirm the right of our countries to use their own resources to ensure their welfare and progress.

3. We reaffirm the importance of education and public awareness, and therefore we commit ourselves to fully support the efforts to increase public awareness and commitment in the matter of healthy environmental practices. We also commit ourselves to strengthen environmental education and urge the international community to support this action.

4. We reaffirm our conviction that the international guidelines for production, consumerism, and distribution are at the root of the environmental problems of developing countries, mainly the deterioration of the ecosystems and the poverty to which the majority of humanity has been condemned.

5. It is acknowledged that the developed countries have had the greatest responsibility in the progressive deterioration of the environment, thus they cannot impose ecological controls and conditions on developing countries.

6. Underdevelopment is the fundamental cause of the serious deterioration of the environment. Therefore, the solution to environmental problems is closely linked to a transformed attitude of international cooperation that will lead to the expansion of financial resources, a greater access to technology, an expansion of trade flows, and to measures to resolve the foreign debt problem.

7. Urgent internal measures to eliminate poverty will not be sufficient if international cooperation based on new principles cannot be counted on.

8. The overcoming of the current environmental dilemma also requires a conscious and decisive effort by states and individuals that must rise above the simple logic of the market forces.

9. Since the signing of the Treaty of Amazon Cooperation on 3 July 1978, our countries assumed a profound and broad commitment to combine actions to achieve harmonious development within the region that is clearly conceived and defined in the treaty. This singular commitment now has allowed our countries obtain a wide range of possibilities to achieve endurable development goals in the region.

10. We acknowledge the rights of the indigenous populations and their contribution to the preservation of the environment. We believe that a greater participation in this effort by these populations would be positive. In this respect, we are adopting significant measures, highlighting the dire effort to respect the rights of the indigenous populations over their land in accordance with national legislation.

11. We have decided to continue exerting all our efforts to preserve the planet's largest native jungle and its sustained development through the application of resources we have in hand.

12. In this respect, we reaffirm the principles and purposes of the 6 May 1989 Declaration of Manaus in which our countries consigned their common interests in the Amazon region, especially on the future of cooperation for development and preservation of that heritage.

13. We also reaffirm that this undertaking will not be sufficient without international cooperation to support the efforts that have been carried out by our countries in the undertaking of their responsibilities and the exercise of their sovereignty.

14. We reiterate our willingness to strengthen subregional and bilateral cooperation to prevent environmental damage and to attend to its consequences.

15. The UN Conference on Environment and Development will be a historic opportunity to begin a new global relation on the basis of financial and technological programs that will allow developing countries to expand their efforts to preserve and stimulate the sustained development of their natural resources. Thus our effort in contributing toward its success jointly with other Latin American and Caribbean countries, with whom in 1991 we adopted the Tlatelolco Platform on Environment and Development.

16. We have agreed to a joint understanding on the conference's main topics. We believe that that agreement

will live up to the international community's expectations. That joint understanding contained in the following document encompasses the position that will be our countries' guide in the negotiations to be held prior to the conference.

Amazon Pact Summit Drafts Document for Rio-92

PY1502164192 Sao Paulo O ESTADO DE SAO PAULO in Portuguese 12 Feb 92 p 13

["Text" of draft document issued by Amazon Pact Summit in Manaus on 11 February]

[Text] Draft Document on the joint position of Amazon Pact countries in view of the upcoming UN Conference on the Environment and Development [Rio 92].

I. Climatic Changes

1. Current global climatic changes will have an important impact on the environment and the development of Amazon Pact countries, including islands and low coastal areas. We urge developed countries, which are preeminently responsible for the concentration of all gases causing the greenhouse effect, to adopt specific measures to revert this trend.

2. Negotiations carried out within the framework of a convention on climatic changes constitute a unique opportunity for the international community to achieve commitments to revert the current trend of the concentration of gases causing the greenhouse effect. Developed and developing countries will necessarily have to adopt different commitments, but these should not affect the economic interests of the latter. Developing countries will be able to fully support current efforts made at the international level to safeguard the climate only if they are assured necessary technological and financial resources that will allow them to adopt the new model of sustained development.

3. Each country must achieve an energy model that is best suited to its needs and those of the international community. The required adaptations lead to changes of life and consumer patterns that are untenable by future generations.

II. Biodiversity and Biotechnology

1. Biological resources are indisputably the natural resources of each country; and therefore, they fall under the sovereign jurisdiction of each country. It is necessary to promote immediately the conservation and sustained exploitation of biodiversities. These activities must be implemented by countries which must also promote the basis for international cooperation ruled by intergovernmental agreements.

2. The rights of countries having biodiversities, and particularly genetic resources, must be recognized. Therefore, it is absolutely necessary to adopt and respect proper systems of regulation, registry, and control.

3. The cooperation between developed countries and those rich in biological resources is necessary, particularly to encourage local research institutions. National data collection, research, and monitoring efforts must have the support of the international community.

4. In addition to their mere conservation, greater emphasis must be granted to the use and sustained development of these resources in order to maximize and increase their benefits.

5. The conservation of biodiversities must be done in an integral manner, prioritizing protected areas and economic and zoological zones. Regional cooperation in this regard is very important. An excellent example is the ecological and economic zoning program planned and developed within the framework of the Amazon Cooperation Treaty.

6. Research in location in the countries of origin and outside locations in particular must be supported and encouraged. In addition, international cooperation is necessary to support genetic banks.

7. Biodiversity and biotechnology are intrinsically related and constitute a clear opportunity to implement sustained development. Biotechnology relies to a great extent on the conservation of genetic and biological resources, particularly in developing countries rich in fauna and flora.

8. It is necessary to value and protect traditional methods and the knowledge of indigenous population groups. Their participation in the economic and commercial benefits resulting from the exploitation of biodiversities is necessary to guarantee economic and social development.

9. We have an unequivocal interest in the success of negotiations to hold a convention on biodiversities. This convention must reflect the interrelation between the access to biodiversified resources and the access to the biotechnology that derives from it, and to the technology needed for the conservation of biodiversity.

10. Access to biodiversified resources must necessarily encompass biotechnological, wild, and cultivated resources. International cooperation is needed to achieve the local development of biotechnological research in countries with biological resources.

III. Rain Forests

1. The international debate on rain forests must take into account that these ecosystems are encompassed in territories that fall under the jurisdiction of countries that exercise their full sovereignty over them. It is up to these countries to issue legislation on these spaces and their use based on national priorities.

2. Any global position on rain forest resources must necessarily include all types of rain forests, without discrimination.

3. In addition to its purely environmental aspects, it is essential to recognize the importance of the rain forest as an economic, cultural, and social space. The interaction of these elements are indivisible, complex, and all-encompassing. Rain forest policies constitute an important development strategy in our countries.

4. The economic dimension of rain forests is part of the national patrimony. This encompasses mineral reserves, energy sources, tourism potential, and possible human settlements for productive activities. Their social and cultural dimension affect the quality of life of the population groups, be they indigenous or not, which rely on it for their sustenance and cultural development.

5. The international community must fully support national efforts striving to promote development models for the sustained exploition of the rain forest.

6. The encouragement of the economic exploitation of native rain forests must be emphasized in view of its positive effects in environmental, social, and economic terms. But to do this it is necessary to have opportune and sufficient access to the market of diverse products derived from the rain forest.

7. The management of forests should reconcile the imperative need to enhance their economic value—to the benefit of people—and proper environmental preservation, in order to guarantee that the communities directly dependent on forests may attain decent levels of social well-being. In this regard, developing countries have specific needs that should be taken into account for the decisions to be made by the United Nations Environment and Development Conference.

8. Economic activities in forest areas can be made consistent with the preservation and protection of natural resources and the environment. Consequently, countries should develop strategies for the profitable use of forests, and their products should have access to markets in order to guarantee sustained development.

9. Those strategies should seek to coordinate short-term actions and long-term prospects reflecting future possibilities. The concept of a cost-benefit balance should be broadened in order to include social justice, more technological efficiency in productive processes, natural resources preservation, respect for cultural traditions of the local population, and respect for the knowledge of the traditional use of the forest.

IV. Soil Degradation

1. Reversing the increasingly intense soil degradation processes, like erosion and the formation of deserts, and preventing this problem has become an increasingly important target. Inappropriate rural development processes, the use of inadequate technology, and disorderly land occupation processes have had a strong environmental impact, which has harmed farm production. This has jeopardized developing countries' food supply.

2. It is essential to fight drought and to preserve river basins through joint development of soil and water resources, and through preservation of the flora.

3. It is necessary to promote the occupation of land in keeping with its environmental features and its development potential, which depend on scientific and technical developments. It is necessary to note the importance of taking preventive and corrective action in the areas destined for preservation. It is also essential to undertake the same actions in productive areas.

V. Water Resources

1. Healthy management of water resources—from the viewpoint of the environment—is essential for the preservation of the ecosystem, the protection of health, and the improvement of the people's well-being.

2. It is necessary to recognize that there is an essential relationship between water resources management and the preservation of sea and land ecosystems, and between biodiversity and the rational use of soil. Consequently, profitable water resource development programs should be designed at a local, national, regional, and world level, along with provisions for their implementation.

3. In this regard, national and regional measures for organization, preservation, and joint management of river basins play a major role. These measures are essential for the proper use of water resources as a source of productive activities like irrigation, fishing, power generation, and transportation, for controlling polluting agents, adopting measures for prevention and control of environmentally harmful factors, and for preserving the people's health.

4. The people's standard of living is closely linked with the provision of drinking water of an appropriate quality and quantity. In this regard, specific water supply targets should be set for the next decade, within a specific timetable.

5. Institutional training, the provision of information to society, the promotion of receptivity within society, education, and the availability of financial resources are preconditions for joint management of water resources. The national efforts for the joint management of river basins should be acknowledged and should receive cooperation from the international community.

VI. Toxic and Dangerous Residues

1. Toxic and dangerous residues should be stored or eliminated where they are produced. Countries should have appropriate technology for the environmentally safe manipulation of such residues.

2. In order to properly tackle this problem, negotiations over a protocol to the Basel Convention should be concluded as soon as possible. The protocol should

establish appropriate procedures with respect to responsibility and compensation payment for damages caused by handling dangerous residues or by moving them across borders.

3. It is also necessary to examine, in light of the Basel Convention, the norms, regulations, and practices in connection with the discharging of dangerous residues into the sea, in order to recommend additional measures—within the framework of the Convention—for preventing pollution of the sea by dropping residues and other substances into it. (London, 29 December 1972)

4. In addition, it is essential for the international community to implement the mechanisms established through United Nations Resolution 44/226, with regard to the illegal trafficking of toxic residues and products, in order to control and report such trafficking.

VII. Institutional Consolidation

1. The consolidation of institutions, which is a precondition for promoting sustained development, should aim at reconciling—in an increasingly active manner—economic decisions and environment preservation strategies. Both international organizations and states should overcome institutional divergencies in these two areas. This should become one of the main factors for innovation in the consideration of environmental and developmental matters.

2. We maintain that the strengthening of national institutions for the promotion of sustained development is a priority objective. We also emphasize the importance of strengthening regional institutions. International cooperation is the unequivocal foundation for the preservation and rational use of natural resources.

3. In general terms, creative formulas should be devised so that the United Nations may have stronger and more efficient mechanisms for enforcement of the decisions of the United Nations Environment and Development Conference. Developing countries should become actively engaged in the scheduling and implementation of such decisions, in order to make sure that they will conform to their priority targets. In this regard, the institutions above should be able to support—in keeping with the specific needs of each country—the measures and programs that each country implements with a view toward achieving sustained development.

VIII. Settlements

1. The problems affecting urban life also have world dimension, because the consequences of such problems reach beyond the borders of nations. Over the past 20 years, industrialized countries—in general terms—have improved living conditions in their cities through large investments and new technology. In developing countries, however, the situation has reached a critical level, which has serious and unpredictable consequences. The United Nations Environment and Development Conference should design a program for specific action, as part of the Agenda 21, in order to change this situation in developing countries.

2. The Agenda 21 settlement programs should include access to basic services such as sanitation, housing, drinking water, security, power supply, and transportation. Within that context, those services should also be provided to the urban peripheral area and to rural settlements. Housing should be provided to the population without an income and to those in extreme poverty.

3. It is necessary to develop means that can make it possible to educate and inform society and to make it understand such problems as abandoned minors, the elimination and manipulation of home and industrial leftovers, unemployment, violence, disorderly occupation of land, development, and lack of basic sanitary services. It is necessary to train professionals to properly tackle such problems.

4. For implementation of the necessary initiatives in this area, it is essential for developing countries to count on additional funds supplied through international cooperation.

IX. Local and Indigenous Population and Communities

1. As part of the effort to improve the living standards of the population and of indigenous and local communities, it is necessary to acknowledge the value of their traditional practices for promoting sustained development. To this end, mechanisms should be created for the preservation of the knowledge found within their traditions, and for compensating for the seizure and commercial use of that knowledge. It is therefore necessary to establish conditions for their self-development, support the development of sustainable alternative production methods of their own, and strengthen national institutional mechanisms in order to promote their development and protect and preserve their habitat.

2. It is equally important to guarantee respect for the rights of indigenous communities and local communities, in order to preserve their cultural traditions. National efforts for promoting sustained development in those communities—with international technical and financial support—are essential, especially within the context of the International Year of the Indigenous People, which will be celebrated in 1993.

X. Financial Resources

1. The attainment of the objective of integrating environment and development calls for a new attitude in international cooperation. Such a new attitude is based on the understanding that developed and developing countries are working for the same cause, and that the economic and environmental reward of that partnership will benefit both developed and developing nations.

2. To reach that common objective, however, nations have extremely unequal financial capacities and abilities. Consequently, developing countries are subject to many restrictions when trying to join world efforts.

3. Industrialized countries have a historical responsibility for the worldwide deterioration of the environment, which today can no longer be justified. For this reason, and because of their economic and financial capacity, they will have to take a proportionately bigger responsibility for implementation of the sustained development process.

4. In this regard, additional financial resources are necessary, in conditions that are appropriate for developing countries, so that they may fulfill their obligation to preserve the environment and promote development.

5. The serious foreign debt problem affecting developing countries should be resolved, because it jeopardizes their capacity to enforce policies and measures that are essential for a sustained development strategy.

6. Protectionist barriers against international trade, either traditional or nontariff restrictions based on environmental claims, should be lifted. On the other hand, it will be necessary to increase the value of natural resources, assigning to them prices that conform to their value.

7. The new financial resources should be channelled through appropriate institutional organs that should take into account concession credits, elimination of preconditions, compatibility with the priority targets of recipient countries, and harmonious treatment of development and environmental matters. In addition, such resources should meet, in an environmentally healthy manner, the socioeconomic development needs of the people of developing countries.

8. The designation of representatives to those organs, and their operation, should be equitably distributed between developed and developing countries. Based on all those reasons, it is necessary to understand that the financial mechanism known as the Global Environmental Facility [three preceding words in English] is clearly limited and insufficient. It is essential to create a mechanism that can help countries implement the guidelines and programs of the Agenda 21, thus promoting sustained development. Likewise, the multilateral legal instruments being negotiated should include their own financial mechanisms, and they shouuld have the above features.

XI. Technology Transfer

1. It is necessary to effectively consolidate new transfer mechanisms through which developing countries may acquire appropriate environmental technology. Because of the financial and institutional restrictions in developing countries, the transfer of such technology should be made—rather than on purely commercial terms—on preferential terms, taking into account the responsibility that developing countries have for the deterioration of the environment, and taking into account the international community's desire to preserve the environment worldwide. The transfer of new environmentally appropriate technology to developing countries is a precondition for fulfillment of the commitments on the environment and on development, which will be established within the context of the United Nations Environment and Development Conference, and within the context of the agreements being negotiated for the preservation of biodiversity and on climatic change.

2. It is also important to increase the capacity of states and the region, not only for acquiring the technologies that are most appropriate from the viewpoint of the environment, but also in the field of scientific research and for developing local technology. Developed countries should urgently support such efforts, both bilaterally and multilaterally.

Southern Cone Summit Issues Declaration Preparatory to Rio-92

PY2402215392 Sao Paulo O ESTADO DE SAO PAULO in Portuguese 21 Feb 92 City Supplement p 4

["Text" of the declaration issued at the end of the Southern Cone presidential summit on 21 February in Canela, Rio Grande do Sul, Brazil]

[Text] The presidents of Southern Cone countries met in Canela, Rio Grande do Sul, Brazil on 20 and 21 February 1992 to discuss and adopt issues for the UN Conference on Environment and Development [UNCED].

This declaration is issued by the presidents of Southern Cone countries ahead of the upcoming UNCED conference.

1. The environmental crisis poses a threat to our the planet. The balance of the ecosystem in which we live is essential for the entire human race. To safeguard the environment and achieve rational conservation of natural resources, all the governments of the world must adopt the firm commitment to jointly safeguard conditions for life on our planet for future generations.

2. We fully assume this common responsibility, aware that the effort to control it must be as diverse and varied as the causes of the present environmental problems, using the financial and technological resources available. The efforts to be made by developing countries demand new, additional, and continuous financial resources under particularly favorable terms. Only technology that is safe for the environment should be transferred under favorable terms and according to the capacity of the developed and developing countries.

3. Development must be the main objective of these actions that are undertaken to revert the degradation of the environment. These actions must combat not only the symptoms but also the causes of the problems. To

fully achieve this objective, multilateral environment programs must properly define responsibilities, respect national sovereignties in accordance with international agreements, and effectively achieve an interrelation that will equitably safeguard the benefits of the parties involved.

4. Because we are convinced of the need for joint actions, we consider it useless to assign responsibilities for the damage caused to the environment without learning an exemplary lesson from the experiences. It is absolutely imperative to immediately agree on joint formulas that will impede the adoption of renewed depredatory measures, banning for ever selfish and indifferent attitudes, and ensuring that all proposed programs include proper studies on the impact on the environment.

5. The international community understands that the protection of the environment and natural resources should not undermine socioeconomic development. Quite the contrary, they must be complementary because a certain production level must be maintained while protecting natural resources. A new international cooperation system is needed so that we may achieve an environmentally healthy planet and a world that is socially and economically just. It is imperative to achieve qualitative growth and sustained development to meet the needs of current generations, yet without jeopardizing those of future generations. The efforts of the international community must not seek recriminations but adopt means to achieve sustained development.

6. We reaffirm the importance of education and the formation of a public conscience and responsibility concerning all environmental problems. The participation of the community, especially society's key sectors—youth, non-governmental organizations, and the media—must be encouraged in order to increase the knowledge and practice of environmentally healthy standards.

7. The strengthening of the scientific and technological infrastructure in developing countries and the cooperation of the developed countries to spread and transfer technologies that are more environmentally healthy, more modern, and more adequate are an essential part of this joint task to defend and protect the environment.

8. The agreements through which we will achieve the proposed goals also require drafting, developing, and collating into an international environmental law. Beside the laws approved by each nation, it will be necessary to improve the laws that regulate the integrity of the resources that belong to more than one nation and the related actions involving these resources. Among other provisions, these international laws must include provisions for establishing environmental monitoring and permanent cooperation systems in the wake of climatic changes, deterioration of the ozone layer, natural disasters, and other environmental risks. The Rio-92 conference must decide on the drafting of a Convention to Formulate an International Environmental Law [Convencao codificadora do Direito Internacional Ambiental], to establish principles, to defining the duties of nations, to define the responsibilities of individuals and corporations, to define the international responsibility within this context, and to establish a way to effectively punish illegal environmental actions.

9. We believe the market economy has mechanisms which, when efficiently used, encourage rational environmental attitudes and discourage those attitudes described as noxious by scientific research. Market forces alone are not enough to establish sustained development. Commercial transactions must absorb the costs of protecting the environment incurred during production without transferring such costs to future generations. We reaffirm our repudiation of subsidy systems which minimize and distort market conditions and tend to condone predatory practices against natural resources.

10. The Rio-92 conference is the highest priority; It represents a historic, unique opportunity to begin a new stage of international cooperation that will be translated into an increased transfer of financial and technological resources. Along with the other Latin American and Caribbean countries which we joined in March 1991 in Tlatelolco, we will seek to establish in Rio de Janeiro a solid basis for an international agreement among all nations, without exceptions, that will lead to sustained development and to joint actions to defend the environment.

We thus express the will of our governments to maintain permanent contact on matters related to the environment and development before and after the Rio Conference through appropriate channels and to jointly organize and carry out our activities. We will thus analyze the technical and economic feasibilities of establishing, with the support of the appropriate international organizations, a regional network to observe the stratospheric ozone layer and to accurately detect any changes.

12. The Canela and the Manaus presidential summits that were sponsored by the Brazilian Government clearly show the political will of South American countries to find common ground to ensure the success of the Rio-92 conference.

The following document on the positions will guide our delegations during the negotiations to be held prior to the Rio-92 conference.

I. Protection of the Atmosphere

1. The global weather change, resulting mainly from the excess gas from the burning of fossil fuels, will seriously affect our economic development. The harmful effects on the stratospheric ozone layer and the air pollution also cause concern.

2. The atmospheric concentration of greenhouse-effect gases must be stabilized. It is necessary to control and reduce the emission of these gases through international agreements based on parameters that will assure increased energy availability in developing countries as well as the adoption of efficient energy, industrial, agricultural, and transport policies.

3. Negotiations on a Framework Convention on Atmospheric Changes represents the only opportunity for the international community to reach a balance which will be individually tailored for developed and developing countries. Developed countries should reduce the emission of greenhouse-effect gases.

4. The deterioration of the ozone layer is a phenomenon that particularly affects Southern Cone countries of the American Continent. Fundamental importance is attached to a most ample participation of the amended Montreal Protocol and to the full implementation of the measures agreed upon at the Meeting of the Parties in London, especially to the supply of new and additional financing for the provisional Multilateral Fund for the Implementation of the Montreal Protocol. Developed countries should urgently implement reconversion measures to stop the destruction of the ozone layer. Furthermore, it will be necessary to analyze the negative consequences and possible future effects, and to seek the means to limit and repair the damage and appropriately compensate those affected.

5. It is important to promote more rational use of fossil fuels and the development of technologies to reduce its harmful effect on the atmosphere. Developed and developing countries should both formulate policies to allow a standard of life based on a more efficient and rational use of energy.

II. Biological Species

1. It is necessary to urgently promote the preservation and the rational use of biologic species. Each country exerts national sovereignty over its biologic or natural resources. It is essential for developed countries to cooperate with countries that have rich biologic resources in order to strengthen the local institutional system. The international community should locally search, gather information, and control and maintain gene banks. It is essential to recognize the patrimonial rights of countries where biologic species originate, especially as far as genetic resources are concerned. To this end it is necessary to adopt appropriate registries, regulations, and control. Biological species should be fully preserved, especially in those protected areas established in economic-ecologic zones.

2. Biologic species and biotechnology maintain an inherent relation that represents one of the most evident opportunities for sustained development. It is important to recognize the necessary relationship between access to the resources of a biologic specie as well as the necessary technology for its preservation. 3. The use of biotechnology in the preservation and use of germ plasma for agricultural purpose, the improvement of cultivated species, and the development of agricultural practices for maintaining the environment are essential activities that should receive solid international cooperation.

III. Soil Degradation and Desertification

1. The international community must adopt urgent measures to prevent and repair soil degradation and desertification and to prevent their multiple causes which threaten human welfare and nutritional security. The Rio-92 conference is an opportunity to meditate on the limitations that have for the last two decades affected the performance of international mechanisms to combat desertification and to decide on ways to renew and strengthen these mechanisms.

2. It is paramount to formulate a strategy for the use of land in relation to its environmental configuration and development potential. These two factors are conditioned to technical and scientific knowledge and supported by international programs and worthwhile prices for agricultural products in a market free from the distortions created by subsidies and various types of barriers. The importance of implementing preventive and corrective measures in areas being conserved must be recognized. It is indispensable, therefore, that the aforementioned measures should be tested in areas with productive potential. Dividing it into economic-ecological zones is a particularly effective instrument.

IV. Forests

1. The economic exploitation of forest resources, which is a sovereign right of states, can and must be in harmony with the protection of the environment bearing in mind that forests, especially native forests, are regions where biological life is concentrated and where carbon dioxide, an important factor for the protection of the soil and water resources, is absorbed. The rational use of forests require, among other factors, good prices and access for forest products to markets under conditions that would allow their sustained development. Beside the purely environmental aspect it is important to recognize the importance of the forest as an economic, social, and cultural area whose complex elements are indivisible. Forest policies must consider that the forest is the habitat of mankind, whether native or not, who depend on it to live.

V. Water Resources

1. The recently issued Dublin Declaration on Water and Sustained Development states that the quality of human life is closely linked to the supply of potable water in sufficient quantities and at a level of purity to satisfy its needs. For this reason goals, programs, and means with definite deadlines must be established. The rational environmental management of water resources is a basic element for the conservation of the ecosystem and the promotion of individual and social human development.

2. The integrated management of water resources is therefore essential for the promotion of sustained development. The measures adopted at national and regional levels for the arrangement, conservation, and the integrated management of hydrographic basins are essential for exploiting water resources for productive activities, for controlling environmental risks, and for safeguarding health. Likewise, the control of agents that produce pollution and the adoption of preventive measures against environmental risks are instruments for development.

VI. Marine Environment

1. The healthy state of the oceans as a means to regulate the environment and their function to absorb carbon dioxide must become a permanent concern of the international community.

2. The deterioration of marine and coastal resources resulting from irrational exploitation, and marine and earth pollution are a serious challenge for countries with rivers which depend on these resources for their economic and social development. In order to protect marine resources it is necessary to effectively reduce marine pollution and establish regulations for the rational use of the oceans. The preservation of the integrity of the ecosystem requires regulations to control fishing activities, both in territorial waters and on the high seas, in accordance with sustained ecologically compatible practices with the rational and best use of hydrobiological resources.

VII. Toxic and Dangerous Wastes

1. The upcoming enforcement of the Basel Convention—which will hold its first conference in Uruguay—is an encouraging event which seeks to control the movement of wastes across borders. This control must be complemented with the establishment of effective mechanisms to verify the fulfillment of the control operations which require the training of personnel and means of control. The regulations on responsibilities included in the convention are essential to ensure its effectiveness. It is also necessary to reach an agreement within the Convention to Curb Ocean Dumping of Pollutants (London 29 December 1972) to prohibit the dumping of dangerous toxic and radioactive wastes into the oceans.

2. The countries that export dangerous wastes must assume the clear responsibility that these wastes will not harm the environment. This requires a reduction of trans-border movements of wastes to a minimum, making it an effective step toward a healthy environment. It is also necessary to minimize the quantity and content of pollutants in dangerous wastes and to insure its secure storage or disposal as close as possible to its production site.

VIII. Human Settlements

1. The problems affecting the quality of life in human settlements have a global dimension because their consequences transcend national borders and acutely affect most countries in the world. During the past 20 years the industrialized countries have achieved outstanding improvements in the standard of living in their cities through investments and technology. In developing countries, however, the problem is reaching critical levels, and grave and unpredictable consequences of this are just around the corner.

2. Cities constitute the main economic activity centers in developing countries. But these cities fail to provide satisfactory answers to the basic needs of a large part of their populations. In order to satisfy these needs it is necessary to prioritize problems with the basic services, particularly potable water, domestic and industrial sewage disposal, housing, urban security, energy, transport, and education.

3. The international cooperation to solve environmental questions must give special importance to eliminating poverty. In this context, rural settlements must receive special attention.

IX. Financial Resources and International Trade

1. The trade liberalization process promoted by the Uruguay Round of the GATT should encourage the use of resources, presently used to maintain protectionist practices, to promote more consistent policies compatible with sustainable development. Environmental protection measures must be aimed at solving specific environmental goals and should not be transformed into discriminatory practices or disguised trade barriers. To promote sustainable development it is essential to create an international climate that encourages growth in all countries, particularly developing countries. Sustainable development presupposes progress in international equality and cooperation with developing countries in accordance with their objectives, priorities, and national development plans. To make this possible, however, it will be necessary to make new financial resources available to developing countries under favorable conditions so that they can fulfill their obligations to protect the environment and promote development.

2. It is essential to establish a mechanism to implement Agenda 21 action programs and the multilateral juridical instruments being negotiated, which contemplate their own financial mechanisms to pursue these objectives. Within this context existing financial sources like the Global Environmental Facility are inadequate and only contribute in a limited way to fulfill the most important commitments on environment and development that will be assumed at the Rio-92 conference and during the discussions on biological diversity and climatic changes.

X. Strengthening of Institutions

1. The strengthening of national institutions, the creation or improvement of regional mechanisms, and international cooperation are essential elements to aid sustainable development.

2. It is essential to encourage increased coordination of economic policies and programs with strategies on environmental protection. This should be one of the most innovating results of the Rio-92 conference. The coordination of economic and environmental programs must be contemplated by nations as well as by international organizations.

3. Creative formulas must be found at the world level to provide the United Nations with efficient and sound mechanisms with which to face the decisions of the conference on programs on sustainable development. The programmatic actions of the conference must be planned and implemented with the full participation of developing countries to ensure that these actions match the real priorities.

Canela, 20 February 1992.

ARGENTINA

CNEA Refutes Greenpeace Charges on Nuclear Plant

PY100213589 Buenos Aires LA NACION in Spanish 8 Feb 92 p 12

[Text] The National Atomic Energy Commission (CNEA) has labelled as "reports without basis" charges by the Greenpeace Ecological Association regarding the risk run by inhabitants of Lima and Zarate, cities in Buenos Aires Province, due to the lack of an evacuation plan in the case of an nuclear accident at the Atucha I plant.

A CNEA communique states: "Control mechanisms in the nuclear sector are very strict and the risk is very small." It adds that "international rules and regulations" are respected and "periodic inspections are carried out."

The CNEA considers the possibility of an incident, like the Chernobyl incident in the former Soviet Union, in Argentina to be "highly improbable," because "the design of the reactors in this country is different, and security is tighter."

The Atucha I nuclear plant has been functioning since 1974 and has not suffered "any type of accident that would have allowed the escape of radioactive material above the authorized parameters for its normal functioning," CNEA authorities recalled.

BRAZIL

Amazonia Military Chief Views Army, Ecologist Role in Region

92SM0245Z Sao Paulo FOLHA DE SAO PAULO in Portuguese 15 Jan 92 p 1-5

[Interview with General Carlos Annibal Pacheco, new commander of the Amazonia Military Command, conducted by FOLHA Manaus correspondent Efrem Ribeiro; place and date not given]

[Text] **The new commander of the CMA [Amazon Military Command], General Carlos Annibal Pacheco, 63, advocates joint action by the Army and ecologists in the region. In contrast to his predecessors, Pacheco sees "points of contact" between the work of the Army and that of ecological organizations. Yesterday he took over the command of the CMA, which is headquartered in Manaus, Amazonas State.**

Pacheco comes to the CMA after a series of differences of opinion with the former military chiefs in the Amazon and with ecologists. Military attache in Bolivia from 1979 to 1981, Pacheco used to head the Army Communications Engineering Department in Brasilia.

In an interview with FOLHA, the general said there is no risk that the Amazon will be internationalized. He said the Army can provide social assistance to the Indians of the region. Following are the most important excerpts from that interview.

[Ribeiro] A few months prior to Eco-92, you are replacing generals whose expressed views differ from that of the federal government. Since your experience has been associated with diplomacy, to whom do you attribute your selection to command the CMA?

[Pacheco] My assignment to the Amazon was the result of routine career considerations. In my specific case, General Antenor de Santa Cruz (who left the CMA command yesterday) had reached the end of his time in active service. He had to be replaced.

[Ribeiro] The Army's position in the Amazon has been one of criticism and combat against the ecologists. What is your position on this issue?

[Pacheco] I do not remember any "combat." You are the one who used that word. I believe the ecologists have a job to do, and we also have a job to do. And in this work, when it is joint, we can find points of contact.

[Ribeiro] What are these points of contact?

[Pacheco] The points of contact will always be in whatever is in the interests of the region, the interests of nature, and the interests of the residents. And in that, we will always be together.

[Ribeiro] Might Eco-92 make decisions on international interference in the Amazon?

[Pacheco] I am only a military commander in the Amazon. Rio-92, not Eco-92, is an international meeting with objectives that, in my opinion, do not in any way dictate what I have to do in carrying out the duties of my position.

[Ribeiro] Is there a risk that the Amazon may be internationalized?

[Pacheco] I don't believe so. I think the Amazon is so Brazilian and is so deeply rooted in the hearts of the Brazilian people that, for that reason alone, there would be no chance of it being internationalized, because the national spirit itself would not accept that.

[Ribeiro] Your predecessors expressed the fear that demarcation of Indian lands along Brazil's border with other countries would pose a threat to national sovereignty. What do you think about the demarcation of Indian lands in the strip along the border?

[Pacheco] The decision to draw the boundaries of the Indian areas along the border was made by the government after much thought. The pros and cons were weighed, and the decision will have to be observed by the federal troops that are here. I believe we will have to maintain national security despite the area being Indian, and regardless of any other factor that may exist in the area.

[Ribeiro] Might the Army start providing social assistance to the Indians of the region?

[Pacheco] Throughout its history, especially during the colonization of the Amazon and the West Central zone, the Army has always given priority to its relationship with the indigenous peoples, whether logistically in military colonies or, as today, in our platoons along the border and in our posts within the Calha Norte project. We will always be attentive to those peoples.

[Ribeiro] Is the Army's force of 18,000 men in the Amazon big enough to protect this country's borders in the region?

[Pacheco] The Army's force in the Amazon is just a beginning. It is as big as the nation can presently assign to the Amazon. The trend is for the Army in the Amazon to grow. And we have grown gradually. Right now we are thinking about bringing an infantry brigade into the region.

[Box p 1-5]

The War of the 'Idiots'

The Shouting Match Between the Ecologists and the Military

In July 1991, then-Military Commander of the Amazon General Antenor de Santa Cruz Abreu said the internationalization of the region—advocated by European governments—"would make the Amazon another Vietnam"; Amazonas Governor Gilberto Mestrinho said he would be "the first to take up arms."

In August, then-Chief of the General Staff of the Military Command of the Amazon General Thaumaturgo de Sotero Vaz attacked the ecologists and said that "if those idiots try to come in here, we will come down hard on them like guerrillas."

Secretary of the Environment Jose Lutzemberger called Mestrinho "ridiculous" and Thaumaturgo an "idiot."

In October, former Minister of the Army Leonidas Pires Goncalves called Lutzemberger an "internationalist and a man without a country"; Rio de Janeiro Alderman Alfredo Sirkis of the PV [Truth Party] said Leonidas "does not have the moral standing to say anything about the Amazon."

Mato Grosso Implements Environmental Plan

92WN0275A Sao Paulo ISTOE SENHOR in Portuguese 15 Jan 92 pp 38, 39

[Article by Francisco Viana: "A Breath of Green Life"]

[Text] **With funds from the World Bank, the Mato Grosso State Government is implementing a plan to save the state's ecology.**

Cuiaba—Imagine a Mato Grosso that every year exports something like five tons of grain to Japan; that has ended the plague of pollution in the goldfields; that has accomplished the miracle of organizing hunting and fishing in the Lowlands [Pantanal]; that has put out the fires in the forests; and finally, that has literally filled with crops and factories an area into which the states of Sao Paulo and Rio de Janeiro would fit easily. Fiction? Obviously, because anyone who disembarks in Mato Grosso these days will find no trace of what has been described above. But in the 200 pages of the state's development program—Prodeagro [expansion not given], in the terminology of the technical experts—this vision of the future paradise is as real as is the abundance of gold in the goldfields or the fertility of the lands that extend over 901,000 square km—slightly more than 10 percent of the national territory.

"We want to grow without committing aggression against nature," insists Governor Jaime Campos, 40, whose ambition is to wipe out the traces of a long decade of predatory occupation. Over the past nine months he has gradually become convinced that unlike the failed efforts of the 1980's, this time the dream of creating a model state will not remain only on paper. Campos—a former mayor of Varzea Grande, a city which is a prolongation of Cuiaba and functions as the entrepreneurial pole of Mato Grosso—felt that he was walking on solid ground as the World Bank was gradually won over to finance the undertaking. Confirmation came in November that he was on the right path when he got the green light for financing in the amount of $250 million.

Anyone who comes to the town of Pocone, approximately 100 km from Cuiaba at the entrance to the Mato Grosso Lowlands, can see a small example of how it is

possible to reverse an environmental disaster. The little town of 3,000 residents—which is located 40 km from the Bento Gomes River, a tributary of the Paraguay River, the principal river of the region—is known for its valuable goldfields but became famous nationally as a case of unbridled mercury pollution. For every ton of gold that it obtained each year, it unceremoniously discharged one ton of mercury into the waters of the Lowlands. In recent months Pocone has gradually been transformed into a symbol of the fight against ecological devastation. The change began after the cooperative decided to initiate an antipollution campaign.

The first step was to end the grinding of the gold—a rudimentary process of purification carried out with mercury—on the banks of the Bento Gomes River. The entire process was concentrated on the outskirts of the town, where the gold miners are now being encouraged to install decanters and build small reservoirs. "The people had been dumping mercury into the water every which way, out of pure ignorance," recalls the miner Joao Ribeiro da Costa, 39, who spent one kg of gold—representing one month's labor on his part—to control pollution. He does not regret it, however. He knows that the levels of mercury in the river have dropped by 70 percent—according to the technical experts—and feels he has been recompepnsed. "The miner is an individualist," he argues, "but he doesn't want to destroy nature."

The aggression against the environment has left deep scars throughout the state, but the government hopes to transform the Pocone experience into an example for the other 70 goldfields in Mato Grosso. Every step will have to be carefully calculated. Gold production—which is a $400 million per year business—is a support pillar of the state's economy second in importance only to grain production. Moreover, the miners are the only means of survival for 400,000 people, out of a population of 3 million. Between these two extremes an ecological disaster of colossal proportions has been developing. In certain regions, analyses of the blood of the miners reveal a level of mercury poisoning that is five times higher than the biologically tolerable levels. The pollution is in addition to the slaughter of animals and fish in the Lowlands. In this immense natural park—which covers 230,000 square km, an area equivalent to the state of Sao Paulo—hunting goes on the entire year. Worse still, the hunting is done indiscriminately without respecting either the procreation cycles or the females. "It is a slaughter that never ends," complains Elbio Jose Apoitia, 63, owner of the Pirigara Hotel in the midst of the Lowlands. Apoitia and his wife Maria Auxiliadora, 53, have already seen the hunters carry away 3,000 alligator skins in a single month. "The planes land at the ranches stuffed with money and take off crammed with skins," the couple says. Apoitia reports the hunters to the police whenever he is able.

The mercury, the hunting, and the predatory fishing are not the only problems to be solved. To free itself from the saga of predatory exploitation, Mato Grosso will have to put out a colossal fire. It is estimated that the radius of action of the burnings extends over 180,000 square km—an area sufficient to plant half of the state's 7 million ton grain crop. Governor Jaime Campos wants to establish a balance between these two opposing models. Ever since he began to negotiate with the World Bank for a slice of the $1.5 billion pie destined for the Amazon region—more precisely, for Mato Grosso, Rondonia, and Amazonas—Campos has been a pragmatist par excellence. The key to his proposal for action is environmental zoning—an idea that had first been put on paper a decade ago but had been in hibernation ever since.

Although the zoning plan is not ready yet, Campos' trump card is a combination of action and negotiation. He created a secretariat—and also a foundation—to deal with the environment, and is currently preparing to demarcate 20 Indian reservations. He will soon take a major step that is even more daring: he is going to demarcate the zones for forest exploitation, where a resource estimated at $25 billion is being despoiled. He has made 60 trips into the interior of the state in search of dialogue; has launched the idea that the Collor administration should provide a different kind of treatment for the Amazon and Center-West regions; and has been fighting to provide—before Eco 92—the regulations for the chapter in the Constitution that deals with the environment. "This is the way for us not to be vulnerable to foreign pressures," he explains.

The governor's style enabled him to end a two-year war between Antarctica—which wanted to build a brewery in Cuiaba—and the local ecologists. The peace was concluded four months ago when the government proved—based on technical studies—that the brewery, contrary to what had been assumed, would not pollute the Cuiaba River. It would in fact "depollute" the river. The brewery represents a sizable investment of $70 million and 600 jobs. In November he recorded two more triumphs: a Sadia packing plant for slaughtering 15 million frying chickens per year, and a Ceval vegetable oil plant. Together, these investments come to $120 million, in round numbers. Half a hundred new enterprises are waiting in line. Mato Grosso has become attractive to investors, because in addition to fiscal incentives that yield profitable tax deductions in the inaugural phase you have the proximity of expanding consumption centers such as Mato Grosso do Sul, Rondonia, and Amazonas.

At the same time, prospects for the integration of Mato Grosso into Mercosur—the Common Market of the South—are firming up. The Parana-Paraguay Waterway project (which is about to be initiated) linking the port of Caceres to Buenos Aires by river will reduce transportation costs by more than half and save the expense of a long trip to the port of Santos. This will enable growers to compete with the Americans in the Japanese market, where the wheat can arrive via Argentina or Chile.

In the future, the state government also wants to encourage trade by exploiting natural resources. For example, Campos favors the creation of hunting and fishing seasons in the Lowlands and the Amazon forest—as in South Africa and Finland—under strict controls. "There are periods of the year in which there are too many animals and fish," he argues. The governor explains that the challenge consists of reconciling the cycles of the Lowlands and Amazonia with economic exploitation. "We must overcome the taboos," he says. "It is not a crime to hunt or fish. It is a crime to kill alligators out of season, or to fish with a net where that is prohibited," he declares.

Campos—who takes pride in saying that he knows "every rock and tree" in Mato Grosso—entered politics just as ecology was emerging as an issue. During the initial campaigns in which he took part at the side of his brother, former governor and current senator Julio Campos, he gradually became aware of a growing conflict: occupation of the land at any cost had to stop, but the state could not—in the name of Nature—remain imprisoned in a straitjacket. In his view that is not the issue: instead, the concept of occupation at any cost should be replaced by the concept of efficiency, as measured in volumes of production, employment opportunities, and protection of the environment. "We need to deal with these problems realistically," he explains, "without falling into the trap either of insensitivity or of fanaticism." Campos' approach to ecology unexpectedly earned praise from Maurice Strong, secretary general of Eco 92, who visited the bird and fish hatcheries of the Barao de Melgarco region in the Lowlands and was impressed with what he saw.

Lack of Rational Amazon Occupation Plan Scored

92WN0275B Sao Paulo O ESTADO DE SAO PAULO in Portuguese 22 Jan 92 p 3

[Unattributed article: "The Ecology of Poverty"]

[Text] Germany has $180 million to help Brazil contain the devastation of the Amazon region, but like the Brazilian Government, it does not know how to.... There is enough money, even more than needed. All told, the seven most developed countries in the world will be able to spend $250 million in the region, but they do not know what to do either. Nor do we. There is, in reality, no plan for the rational occupation of the Amazon. The plans implemented previously were not really plans, but laws that merely allowed the granting of fiscal incentives to those who would invest in the area, on condition that they preserve 50 percent of the forests. But has anyone monitored the process? Or has any governmental organ prohibited, as part of those plans, the adoption of measures that devastate and degrade the soil? No. Everything has been done without any planning, among other things because although this planning should be based on more profound studies of soil conditions, deforesation, and the planting of crops in the forest, such studies do not exist. At most, Ibama [Brazilian Institute for Environmental Affairs and Renewable Resources] has attacked the governor of Amazonas for intending to allow Gilberto Mestrinho to decimate the alligators that are invading houses and attacking their occupants. But this is prohibited in the name of the sacrosanct ecology, which also should preserve the balance between the animal species and nature. According to reports from William Waack, our correspondent in Berlin, the Germans are complaining that there is too much bureaucracy, with the result that many ministries and governmental organs deal with one and the same problem. This greatly complicates the situation, mainly because none of these organs or ministries understands the Amazon or knows what to do. In the studies made by international technical experts at the request of the German authorities, a consensus was established: *the poverty, the economic crisis, and an erroneous policy of settlement are the principal causes of the destruction of the Amazon environment.* The fact is that man destroys the forest—by burning—only because he has found no alternative. He does not have the conditions necessary to plant crops, and he needs to survive, even if it is at the poverty level. He does not kill turtles for sport, but for food for himself or for sale. He does not enjoy cutting down or burning trees; he is obliged to do so. In this context, the best course would be to forget ecological concerns to some extent and pay more attention to the living conditions of the Amazon populations and of the migrants who are flocking from all over Brazil to this region—which is the fastest growing region in the country, according to the 1991 census. To provide education, provide health care, create jobs, and develop the economic poles that have already been identified instead of promoting a linear advance in the forest, as was attempted with the opening of the Transamazon Highway—these should together constitute one of the points on the agenda of this foreign aid. It is poverty that harms the ecology. The "ecology of poverty" must therefore be attended to first, and after that the preservation of the forests.

Preservation of the forests will come when the person who causes the devastation is no longer hungry, when he gets an education, and when he no longer represents just one more forsaken component of the Amazon forest environment. Man comes first. The rest will come naturally.

Collor Opening Speech at Manaus Amazon Summit

PY1202163492 Sao Paulo O ESTADO DE SAO PAULO in Portuguese 11 Feb 92 p 13

["Text" of Brazilian President Fernando Collor's opening speech at the Amazon Pact summit in Manaus, Brazil on 10 Feb]

[Text] From the social viewpoint, we cannot endure a polluted planet or an unfair world.

The essence of our quest for a new model of the relationship between human beings and nature lies in this short phrase.

Gone are the days when the need to grow prevailed over any environmental concern. The challenge now for the people and governments of the world is to create the necessary conditions so that progress and the preservation of the environment may coexist harmoniously.

The sustained development process, which involves environmental aspects, must be radically different to the voracious growth process inherited from the industrial revolution which believed that natural resources were endless.

We must stop the depredatory and inhuman use of natural resources.

We must ponder in a profound and frank manner on the absolutely nefarious consequences of maintaining an economic model that crystallizes an objectionable division between the ways and quality of life.

We must admit that in our hemisphere poverty lies at the root of the most serious environmental problems.

Therefore, we must have the stamina to discuss new models.

The future lies in clear and determined political decisions that may open paths for real changes.

We already know the great objectives:

Each man, each society, each nation must be given the economic and technical resources to overcome the unconscious forms of devastation that are provoked by poverty and that nurtures poverty.

The overdeveloped world must stop conscious forms of devastation so that we may reach determined, innovative agreements to preserve our natural heritage to its full extent.

Messrs. Presidents:

This is a working meeting during which we will discuss the position the eight countries represented here will share during the UN Conference on Environment and Development to be held in Rio de Janeiro just four months from now.

For the first time, and with justification at the end of this century, the international community will fully discuss the problem of respecting nature, relative to the various aspects of development.

We will meet in Rio de Janeiro to comprehensively discuss the exploitation of the earth, the fauna and flora, the use of all energy sources, their impact on the atmosphere, the use of surface and underground waters, and the impact on the seas and their resources, all from the viewpoint that the human being should be the key issue of any environmental concern.

Within this framework, global development has two outstanding characteristics: comprehension and inequality.

The first characteristic ranges from the manipulation of cells to interference in outer space; above all, it gives us hope that the human being's creativity may serve ethical goals.

On the other hand, the overall image of development at this time reveals regrettable inequality.

More than 30 years of diagnosis and effort has yielded very little besides a generalized sense of frustration.

Here, in this very region, the dramatic and inhuman situation of poverty cannot last because it even affects our children, hurting our most basic ethical principles.

In addition to being unfair, the gap between levels of development represents an inefficient way of administering the planet's natural resources.

Super rich countries, which are concerned but not yet committed, should admit the tremendous damage they have caused to the earth, and consequently to themselves and to future generations throughout the world.

They know there are no more isolated regions in the world.

The less access poor countries have to capital, technology, and better living standards, the more likely they are to devastate the environment and thus contribute to an overall imbalance.

The world economic process is definitely changing from a situation where the gains of the few did not seem affected by the stagnation or collapse of the many, to another situation in which either everyone wins or everyone looses.

The new development model, which we want sustained, does not entail either a denial of the economic growth no does it deprive the people from living in comfort. This model guarantees worthy living standards for everyone in the world, now and in the future.

It also guarantees a worthy life for our Indian tribes whose culture and way of life we must decidedly defend.

Messrs. Presidents:

Brazil is deeply honored to receive your excellencies here in Manaus.

I, personally, wish to thank you for your sense of friendship which brought you to this debate so necessary for our continent and our world.

In our capacity as leaders of democratic countries, as Latin Americans, as leaders sensitive to the environmental and human problems, as leaders engaged in the task of repairing our peoples' social debt, we share special responsibilities at the Rio-92 conference.

The fact that we are Amazon region countries is not what unites us. Our relationship covers a wide scope of issues which go far beyond this region.

Moreover, there is no denying the important role the Amazon occupies in international debates. The wealth and complex nature of this ecosystem justify the attention of the scientific world and public opinion.

The countries that have sovereign rights over the various parts of the Amazon constantly note the need for international cooperation to implement the policies we draw up conscientiously.

Messrs. Presidents: The purposes of this meeting must be of a universal nature and focused on global subjects.

We feel the urge to unite our voices because in a coordinated manner we will broaden our contribution and influence on the decisions which, together with the chiefs of states or governments of the entire international community, will be made at the Rio-92 Conference.

Our current effort is a sign of the sense of responsibility we have before our people and the remaining countries of this planet that, together, are responsible for a healthy environment that is fair for the social viewpoint.

We must fulfill our duty with dignity.

Messrs.. Presidents:

Rio-92 may become a turning point in international cooperation if it comes up with a responsible, consequent, and ethical analysis regarding the quality of the North-South relationship.

We expect the community of nations to make an extra effort to negotiate compulsory regulations.

We want guarantees that the developing countries will have access to new "clean" technologies that will preserve the environment as well as additional financing, granted in appropriate terms, to allow them to adjust to the higher standards necessary for the preservation of the environment and, obviously, to implement sustainable development models.

The new international order will reflect the victory of democracy and, based on broad participation in the decision-making process of significant international issues. One of its objectives will be a decided cooperation policy. Only thus will we able to safeguard development and overcome the unfairness which is at the root of every conflict.

A future in peace lies in the fact that all leaderships of the world, governments and society, accept this objective and work to achieve it. After all, the survival of mankind and the very planet is at stake.

Therefore, I reiterate my invitation to all chiefs of states and governments from every corner of the planet to attend the Rio conference.

Your participation will guarantee a greater political force to the decisions we may adopt. Brazil awaits all of you with open arms.

May God help us!

Brazil To Propose Carbon Monoxide Reduction Treaty at Rio-92

PY2502130492 Brasilia Voz do Brasil Network in Portuguese 2200 GMT 24 Feb 92

[Text] **During the Rio-92 [UN Conference on Environment and Development] environmental conference, Brazil will propose to wealthy countries a treaty to reduce carbon monoxide emissions, according to Education Minister Jose Goldemberg.**

This treaty would be based on the principle that developing nations would make a great effort to reduce their emissions if the United States, Japan, and other industrialized countries reduced theirs and also would provide resources and technology necessary for our countries to make some progress in this direction. Thus, an agreement between China, Brazil, and India would not be enough. We need an agreement that will include developed countries. This agreement will be sought through intense diplomatic negotiations until the conference, which takes place in June.

According to the education minister, Brazil, China, and India are responsible for 14 percent of the world's pollution, same as the entire EC.

CHILE

Plastic Garbage Endangers Marine Fauna in Antarctica

PY2602011292 Santiago EL MERCURIO in Spanish 12 Feb 92 p C5

[Report by Francisco Eterovic]

[Excerpt] Punta Arenas—Researchers from the Chilean Antarctic Institute [Instituto Antartico Chileno] (Inach) have expressed their concern about the presence in Antarctic waters of an environmental problem known as "enmeshment" ["enmallamiento"], the persistence of which threatens to cause the inexorable death of the seal population in those latitudes.

The scientists explained that, due to the indiscriminate discharge of nonbiodegradable garbage into the sea, currents are carrying and spreading plastic debris along the coast—debris that comes from the South Shetland Islands in the Antarctic.

The observations were noted during a scientific research project on marine mammals sponsored by Inach and headed by Professor Daniel Torres. The field work was carried out by Professors Anelio Aguayo, Juan Capella, Hernan Torres, and Ricardo Jana during the current Antarctic season. [passage omitted]

Agreement on Ozone Study Signed With Russian Physics Institute

PY1502014892 Santiago Television Nacional de Chile Network in Spanish 2330 GMT 14 Feb 92

[Text] The ozone layer continues in the news this year, but this time this is positive news: An important technological cooperation agreement was signed today between the Chilean Air Force [FACh] and the General Physics Institute of the Russian Academy of Sciences.

International scientists greatly worried the public last year when they announced an increased weakening of the ozone layer. This evidence, added to the lack of factual information on the subject, led the FACh to seek a formula to investigate, from our perspective, what is really happening with this protective layer of the atmosphere, how it is affecting our country, and what we may do to control the problem.

This is how today, at noon, General Jorge Iturriaga, FACh Logistics commander, and Vyacheslav Bukreyev, deputy director of the General Physics Institute of Russia, signed a joint technical cooperation agreement. This is the first treaty signed between the FACh and the Russian institute.

[Begin Bukreyev recording in Russian with passage-by-passage translation into Spanish] This is a very important agreement for the practical development of works in the field of ecology and for the measurement of ozone concentration in the atmosphere. [end recording]

The agreement soon will be put into practice. The first stage of the program comprises a one-year study of the variations of the ozone layer with modern measurement equipment to determine the real seriousness of the problem. Thus, more efficient projects may be designed to allow Russians and Chileans to control the situation.

Without doubt, this is a positive partnership for the benefit of the current and future generations. It is also the starting point of more scientific agreements between the FACh and the Russian institute, like the one that will be signed during FIDAE [International Air and Space Fair] 92, where a Muscovite delegation will organize the participation of a Chilean astronaut in a future space mission.

COSTA RICA

Fish Exporters Forecast Losses Due to Tuna Embargo

PA1302201492 San Jose LA NACION in Spanish 5 Feb 92 p 6A

[Text] Costa Rican tuna exporters expect to lose approximately $4 million due to the U.S. embargo on tuna imports from 21 countries, including ours.

Hector Fernandez, president of the National Chamber of Fishing Product Exporters (CANEPP) [Camara Nacional de Exportadores de Productos Pesqueros], explained that in 1991 seven Costa Rican companies exported fresh tuna worth $2 million to that country, and expected to double the amount in 1992.

He also urged the government to approach U.S. authorities in an effort to repeal the tuna embargo ordered by a federal judge, due to the extermination of dolphin species which are trapped in the drift nets.

Minister of Foreign Trade Roberto Rojas recently said the embargo would not affect our country, as no tuna is currently being exported to the U.S. market. We were unable to locate the minister after learning the views of CANEPP.

The CANEPP president affirmed that tuna exported to the United States is not caught using the method in question. Instead of fishing with drift nets (which are used by the large tuna boats and affect the dolphin), Costa Rican fishers use lines with bait at a certain distance (an artisan form of fishing).

Costa Rica has been using this method for two years, "during which fishermen have made heavy investments and have had to modernize their techniques," Fernandez explained.

Besides the financial problems for exporters, the trade leader said the embargo would affect many homes, as a large number of families depend on tuna fishing.

He pointed out that the measure is contrary to the free trade policies which the U.S. Government itself is trying to promote.

Furthermore, our country also exports to the European market, which buys tuna from Mexican and Venezuelan boats. These countries are directly affected by the U.S. tuna embargo.

Government Sues Standard Banana Company Over Coastal Contamination

PA1802133992 Mexico City NOTIMEX in Spanish 0052 GMT 18 Feb 92

[Text] San Jose, 17 Feb (NOTIMEX)—The Association for the Defense of Costa Rica's Hydrographic Basins [Asociacion para la Defensa de las Cuencas Hidrograficas de Costa Rica—ADCH], on 17 February filed a lawsuit in The Netherlands against the Standard Fruit Banana Company on charges that it has contaminated the waters of the La Estrella River on the country's Atlantic coast.

The lawsuit was filed at the International Water Tribunal based in Amsterdam, which since 16 February has been meeting to consider the lawsuit against the banana company, as well as the volume of the river, and the coral reefs off the coast of Limon in Costa Rica's Atlantic area.

According to an investigation conducted by the Costa Rican School of Environmental Sciences at the National

University, the ecological damage caused by herbicides, pesticides, fungicides, and other chemicals used on the banana plantations are affecting the plantation workers and area residents.

Most of the intoxications reported in Costa Rica occur in the banana producing area on the Atlantic.

Because of the chemical substances, banana farm workers suffer spells of vomiting, dizziness, headaches, eye lesions, skin burns, and allergies, according to the government.

The Costa Rican lawsuit was one of the ten received at the Amsterdam court from more than 20 that were presented over the past few days.

ECUADOR

Drought Leads to Power Shortages, National Emergency Decree

PA0802200692 Mexico City NOTIMEX in Spanish 0859 GMT 8 Feb 92

[Text] Quito, 8 February (NOTIMEX)—On the night of 7 February, Ecuadoran President Rodrigo Borja Ceballos decreed a state of national emergency due to electrical power shortages and ordered new measures to face the crisis.

The drastic measure was imposed as a result of the situation that arose from the lack of rain in the eastern part of Ecuador, where the country's most important hydroelectric power station is situated. This power station supplies electricity for 80 percent of Ecuador.

According to the document signed by Borja, the state of emergency will be in effect throughout the country until the situation that arose from the virtual shutdown of the power plants can be overcome.

The prolonged drought in Ecuador's southern region—the most serious drought in the past 30 years—had made it necessary to establish daily energy rationing on a national level from 0600 to 1300.

The rationing program, which is about to enter its third week, has caused severe harm to the commercial, tourist, and productive sectors, as well as to the population that has settled in the country's urban areas.

The presidential resolution of 7 February has called for "social solidarity" to use the "available electrical power" in the "most rational" manner, while the problems related to generating electrical power continue.

As one of the measures to face the emergency situation, Borja ordered the Ministry of Finance and Public Credit to disburse funds to take care of the needs that have arisen from the energy problem.

Borja ordered a "freeze" on the price of fuel that the state- owned oil company supplies to electrical companies, and authorized the "urgent" importation of electrical generators by private enterprises.

He ordered that restaurants, bars, saloons, and nightspots in general, operate only until 2200. He also ordered that the hours of television and public illumination, as well as the hours of illumination of billboards and facades of buildings, be reduced.

In the decree, Borja's Social Democratic government called for the application of measures to ration electrical power, and stated that the energy crisis "results from the fact that no precautions were taken in the past."

Borja held his predecessors responsible for putting aside the projects that had been included in the electricity master plan that the government formulated in 1980, as well as of not having taken advantage of the credits that were available for the construction of dams.

Even though the decree is not precise about how long the state of national emergency will be, it is estimated that the lack of rain will prolong the implementation of this measure for at least the next 15 days.

Different sectors of the country, especially the productive sector of Guayaquil—Ecuador's main economic center—had asked the government to declare a state of national emergency as the first step in overcoming the crisis.

PANAMA

Foreign Ministry Files Complaint on U.S. Tuna Embargo

PA2702172792 Panama City EL PANAMA AMERICA in Spanish 27 Feb 92 p 1-A

[Text] Panamanian Commerce and Industry Minister Roberto Alfaro has reported that the Panamanian Government, through the Foreign Ministry, filed a complaint at the U.S. State Department in an effort to get the embargo the United States has imposed on tuna this year lifted.

The United States has imposed an embargo on tuna from several Latin American countries, claiming that thousands of dolphins are sacrificed in the process of tuna fishing, thus violating international agreements for the protection of species in danger of extinction.

Panama was included in the embargo when the measure was extended to the countries being used to ship and store the product. It is estimated that the country will lose between 50 and 60 million balboas if the measure is not lifted.

The minister explained that Panama has fulfilled all of the commitments established in the agreements with regard to tuna. This is why the pertinent consultations have been started to reinstate the country's status as an

exporter. Alfaro added that an executive decree was issued in 1991 prohibiting the capture of tuna swimming over dolphins.

Panama exports most of its tuna to the EEC, which has also embargoed all Panamanian seafood because Panamanian flagged ships fish in the territorial waters of several European countries. This amounts to a 5 million balboa loss.

URUGUAY

Lacalle Urges UNCED Commitment to Treaty on Environment-Damaging Acts

PY2102142492 Montevideo Radio Carve in Spanish 2300 GMT 20 Feb 92

[Report by (Jorge Dibuna) from Canela, Brazil]

[Excerpts] Uruguayan President Luis Alberto Lacalle said that the UN Conference on Environment and Development [Rio-92], which will be held in Rio de Janeiro in June, will call for international laws against actions that damage the environment. He said that these acts must be punished.

Lacalle met with Brazilian President Fernando Collor to discuss bilateral issues, including the acid rain produced by the Candiota dam and how this rain is affecting the northwestern part of Uruguay. He said that much progress has been achieved.

Let us hear President Lacalle's comments after signing the Letter of Canela and other documents on the environment:

Uruguay's position on the issue is very succinct and concrete but, nonetheless, very important. We already defined this position at the Cartagena and Guadalajara Conferences. The Uruguayan Government believes that the Rio-92 conference must commit all nations to draft an international treaty on environment-harming acts. The treaty must establish punishments for countries, people, companies, or corporations that harm the environment. [passage omitted]

The Uruguayan position is included in the Letter of Canela and I believe that this is the only way to make the Rio-92 conference yield concrete results. If not, declarations of good intentions will abound but the sea, the atmosphere, the forests, and the rivers will continue to be destroyed.

Another position we have defended and which represents the current administration's philosophy is that, although many criticize the work of the government and insist that most of this work must be transferred to the private sector, there is one issue that must remain in the hands of the government: The defense of the environment. [passage omitted]

REGIONAL AFFAIRS

Kuwaiti, Saudi Environment Heads Present Report on Impact of Gulf War

LD1702140792 Tehran IRNA in English 1833 GMT 15 Feb 92

[Text] Tehran, Feb. 15, (IRNA)—The head of Kuwait's environment protection organization 'Abd-Al-Rahman 'Abdallah Al- 'Awadi met with President Akbar Hashemi-Rafsanjani and presented a report on the harmful impact of the Persian Gulf war on the regional environment. He also appreciated the concern of the Iranian president for the Persian Gulf environment as well as his frequent calls for protecting it.

The Kuwaiti official said the 8-member Regional Organization for the Protection of the Marine Environment (ROPME) looks to Iran's support for it, and expressed hope that ROPME would successfully carry out its resposibilities.

ROPME groups Iran, Oman, UAE, Qatar, Bahrain, Kuwait, Iraq and Saudi Arabia.

The head of Saudi Arabia's environment protection organization, 'Abd—al-Bari Alqin, who was also present at the meeting lauded Iran's operations for protecting the environment, and presented a summary report of the on-going projects of his organization to Hojjat ol-Eslam Rafsanjani.

The Iranian president in response said Iran values the efforts undertaken for protecting the Persian Gulf environment especially because of its significance to public health and in the better utilizaztion of god-given resources. He said the more investment in ROPME, the better returns it will have for the people of the region.

President Rafsanjani expressed hope that in view of the status of the region all Persian Gulf states would pool their resources for making the waterway a healthy environment for all.

Iran's Manafi Urges Cooperation on Gulf Environment

LD2202222292 Kuwait KUNA in Arabic 1015 GMT 21 Feb 92

[Excerpts] Kuwait, 21 Feb (KUNA)—Dr. Hadi Manafi, the adviser to the Iranian president and head of the Iranian Environmental Protection Organization, called on the countries of the world to give all kinds of aid to the Arab Gulf countries to remove pollution from the region.

In an interview with KUNA on his arrival in Kuwait last night, Dr. Hadi Manafi said that the losses in the Gulf region as a result of the Iraq-Iran war and the war to liberate Kuwait from the Iraqi invasion, are huge and cannot be calculated now, as they require deep studies and comprehensive efforts with the help of all the countries of the world.

Dr. Manafi said that his visit was in response to a proposal by the secretary general of the Regional Organization for Environmental Protection, Dr. 'Abd-al-Rahman al-Awadi, who called for Kuwaiti and Iranian environmental protection officials to meet the leaders of the Arab Gulf countries to gather their opinions on cooperation in environmental issues and removing pollution.

Dr. Manafi pointed out: In implementing the proposal we started by meeting Iranian President Hashemi-Rafsanjani; and Prince 'Abdallah Bin-'Abd-al-'Aziz, Saudi crown prince, deputy prime minister, and commander of the national guard.

He pointed out that the concerned countries in the region should contribute a larger share in financing the fund aimed at removing pollution from the region. [passage omitted]

He said that the countries which benefit from the region, particularly those transporting the oil, should participate in the expenses of any pollution which could occur in the region. [passage omitted]

Dr. 'Abd-al-Rahman al-Awadi said: We will meet the Amir tomorrow. His Highness is very interested in the environment. We hope to coordinate and to stand together before the world and to show that we are concerned about the environment. [passage omitted]

BANGLADESH

Bangladesh Prepares Policy Report for Rio-92 Conference

92WN0290A Dhaka THE NEW NATION in English 7 Jan 92 p 3

[Text] Deforestation, water regulation and pollution of the Bay of Bengal are creating serious environmental hazards in the country and the region as well, reports UNB.

Official sources told UNB on Sunday that a country report on the issue is under preparation ahead of the United Nations Conference on Environment and Development (UNCED) to be held in Brazil in June.

Specialised UN bodies are also now busy holding preparatory meetings to chalk out measures to protect the world from greenhouse effect which will be finalised at the Brazil conference.

Heads of state or government of 90 countries will attend the world meet which may lead to signing of agreements on environment and development-related matters, sources said.

Bangladesh is playing a vital role especially in highlighting the position of the least developed countries in respect of global warming, and most likely, Prime Minister Begum Khaleda Zia will lead a strong delegation to the Brazil conference, they added.

To contain the environmental degradation, Bangladesh alike other LDCs and developing countries is trying hard to press the industrialised nations into legal bindings to combat the greenhouse effect.

"Developing countries are mounting pressure on the developed at a different fora to agree to adopt measures for combatting the greenhouse effect," said a concerned official preferring anonymity.

The Bangladesh country report identified sea level rise, phenomenal climatic changes and tropical cyclones as global issues while upstream deforestation, water regulation and pollution of the Bay as regional issues.

Bangladesh, expressing grave concern over the global warming, like other developing countries, is accusing the industrialised nations of contributing to the global warming.

Neighbouring India and China, where huge coal is burnt, also greatly contribute to greenhouse gases ultimately leading to global warming, the report maintained.

Bangladesh, as part of its strategy for combatting environmental degradation, has already started post-disaster rehabilitation programme, population control, disaster preparedness and disaster relief management.

A highly placed source said the industrialised and coal-burning nations were trying to avoid any legal bindings.

Global warming has reached a stage where the existence of maritime and low-lying countries would be at stake if measures to arrest environmental degradation were not taken without any further delay, environment experts noted with concern in different forum meetings.

Many low-lying countries would be washed away while parts or entire countries in the coastal areas would be submerged with the rise in sea level within next hundred years, a local environmentalist said, adding 20 percent area of Bangladesh might also go down the sea water.

The developing countries participating in different fora are also asking for additional financial assistance on preferential and non-commercial basis from the industrialised countries.

Proposals to transfer technology to the developing countries to mitigate environmental degradation were also being put forward in various meetings.

INDIA

Country Facing 'Grave' Threat From Deforestation

92WP0142A New Delhi PATRIOT in English 26 Dec 91 p 5

[Text] Bombay, Dec 25 (UNI)—The consequences of deforestation are so grave that they threaten the survival of India as a civilisation, warns Rashmi Mayur, director of urban development institute here.

The soil erosion is reaching six billion tons a year, floods in the north-east India are endemic while ground waters, which are not recharged, are disappearing at an alarming rate, Dr. Mayur said in his keynote address at a conference on environment and forestry, at the Tata Institute of Social Science here yesterday.

Among other important suggestions he made were that proliferation of the wood-based industries in the north-east should be stopped immediately and India should have a scientific forestdata bank for planning and sustainable development of forests.

Dr. Mayur has suggested that all the primal forest be declared as closed biosphere sanctuaries, so that all the rare species of flora and fauna are protected. Mining in closed forest areas should be banned, he said.

Dr. Mayur said India should plant at least five billion trees before the dawn of the next century.

But none of these efforts would succeed, he said, unless a stop is put to the population growth, which according to him is at 2.2 percent a year at present. It should be brought down to one percent, he added.

India's future depends upon the philosophy of sustainable development, which is based on the principle of controlling population, equitable use of resources, emphasis on simple rural and tribal life styles, conservation of resources and development of good quality of life.

Next June in Rio de Janiero one of the most fundamental issues which will be discussed at the global convention is the conservation of the remaining forests of the world.

Of the 16 hectares [as printed] of forest lost each year, 12 million are rain forests, located in the southern hemisphere of the earth where 80 percent of all the species on the planet are located, he added.

Meteorology Chief Sees No Ozone Problem Over India

92WP0143A Madras INDIAN EXPRESS in English 6 Jan 92 p 10

[Text] Baroda—The depletion of ozone over India is not causing any problems as of now and the panic being created by certain sections was not real, the director

general of meteorology, India Meteorological Department (IMD) Dr. S.M. Kulshresta informed the 79th Science Congress in session here.

Delivering the 12th G.P. Chatterjee Memorial Award lecture, on "Meteorology in Service of Man" on Friday, Dr. Kulshresta said the department was continuously monitoring the ozone depletion and acid rain threats over the country.

"The public seems to get confused due to a cacophony of semi-scientific statements emanating from different sources on such crucial atmospheric issues and IMD was doing its best to de-mystify such statements, he said.

Dr. Kulshresta said meteorological forecasts were helping in better disaster mitigation and providing economic benefits to the country. The modest share of ten per cent in disaster reduction if attributed to forecasts, the savings that result would amount to Rs. 60 crore per year.

The IMD director said the annual expenditure on meteorological science and services in the country was Rs. 70 crore and even if its contribution to the economic activities and disaster mitigation was a mere one per cent, than it would have repaid this expenditure to the society.

Dr. Kulshresta claimed that during the last decade there was not a single aviation accident related to failure in weather forecast in the country, in addition to timely forecasts of cyclones as well.

He said meteorological research in India was "up to date" and the country was one of the three centres for global research with a centre to study cyclones in New Delhi. The other two being for study of typhoons, Tokyo, Japan and hurricane, Miami, USA.

New National Policy To Control Pollution

BK2202091692 Delhi All India Radio Network in English 0830 GMT 22 Feb 92

[Text] Government has announced a new national policy for abatement of pollution to make the environment clean and safe. Addressing a news conference in New Delhi, the environment and forests minister, Mr. Kamal Nath, said among other things the policy envisages compulsory annual environmental audit for industries and a host of fiscal incentives for adopting new technologies to control pollution. He said a separate notification on environmental audit will be issued on Monday. Giving details about the fiscal measures, the minister said, while regulatory measures remain essential for the effectiveness of the policy, new approaches for preventing deterioration of the environment would be introduced.

Decision To Sign Montreal Protocol Announced

92WN0355A Bombay THE SUNDAY TIMES OF INDIA in English 23 Feb 92 p 1

[Text] New Delhi, 22 February—The United States President Mr. George Bush's sudden reversal of his stand to announce the advancement of the schedule to phase out the production of suspected ozone-depleting chlorofluorocarbons (CFCs), in a bid to outgreen his rivals, has added a new dimension to the worldwide effort to save the ozone layer.

India, which has already missed the bus in this regard due to insistence on not joining the worldwide effort to phase out the chemical till some amendments were made in the zone treaty, has at last woken up and announced its decision to sign the Montreal protocol.

Mr. Bush announced last week, before the campaign for his reelection was kicked off, that the United States would halt the production CFCs by 1995. This was five years ahead of the schedule drawn up by the signatories of the international treaty on this, called the Montreal protocol.

He also called upon other countries to follow suit. But, in reality, the United States was following European countries, who had decided to advance the phase out schedule to 1997 or 1995, but the U.S. resistance was the major stumbling block.

The United States, which manufactures and consumes over 40 percent of these chemicals, used mainly as refrigerants, coolants, cleaning agents in electronics, had resisted the phase out effort on the plea that the data linking the chemicals to the depletion of ozone was inadequate.

The ozone layer, situated between 18 and 26 kilometres from the earth's surface and made up of the three-atom oxygen, shields the earth from harmful ultraviolet (UV) radiations from the Sun. Studies have shown that UV radiation causes skin cancer among humans.

Studies in the last decade indicated the formation of a hole in the ozone layer over Antarctica and recently over the Arctic, attributed mainly to the reaction of chlorine which forms part of CFCs with the ozone. The ozone is broken up by the chlorine atoms. CFCs emitted from the earth waft to the ozone layer in three to four decades.

Alarmed by the prospect of the hole expanding, 20 industrialized countries, which together form 85 percent of the worldwide CFC consumption, signed the protocol in Montreal in September 1987. So far 60 countries and the European Community (EC) have signed the protocol.

Environment Minister Explains Stand for Earth Summit

92WN0354A Madras THE HINDU in English 24 Feb 92 p 9

[Text] New Delhi, 23 February—With four months to go for the Earth Summit in Brazil, the stand of the developing countries is getting sharply defined and every effort is being made to ensure that the new and urgent environmental concerns are not used as one more pretext by the developed countries to impose new conditionalities on aid or trade or, worse, erode the sovereignty of developing countries and their control over their own natural resources.

For the first time the government has admitted that environmental issues were being used to put a disproportionate share of the burden of cleaning up on the developing countries in spite of clear scientific evidence that it is the affluent North which is responsible for ozone depletion and the greenhouse effect threatening a global climate change.

India, especially, has made it clear that it will not accept any convention that impinges on its sovereignty and its stand is expected to be shared by China and many other developing countries. In April a ministerial level conference will be hosted by Malaysia to take stock of the situation just before the Earth Summit in June.

Forest convention: Mr. Kamal Nath, Minister of State for Environment and Forests, is of the view that unless something dramatic emerges at the last preparatory committee meeting in New York next month, there will be no forest convention, for India has made it clear that it cannot accept any review of its national policies concerning its forests by any external agency. Nor will it be a party to any mandatory guidelines in areas relating to forests or energy.

Mr. Kamal Nath briefed newspersons on Friday on the outcome of the special session of the governing council of UNCED held at Nairobi earlier this month and on the progress made so far on various negotiations related to the Earth Summit. The hopes of a biotechnology convention being signed at the Summit have also receded with the developing countries like India making it clear that they cannot allow free access to the forest resources unless there is a reciprocity in the access to technology that uses those resources. "There must be a link between bio-resources and biotechnology," he said.

Elaborating on the stand of the affluent North on the forest convention, Mr. Kamal Nath said the western countries would like to see tropical forests declared a global asset and resource since there was an urgent need to preserve them as sinks for carbon dioxide emissions. "But how can forests which are the resources of individual countries become global resources while technologies which can help reduce those emissions remain in private hands?" He said the developing countries were determined to fight hard against any such unequal convention and there was no question of allowing any international agreement that would erode sovereignty and jurisdiction over all natural resources within the country.

He emphasised that any Earth Charter must clearly recognise that the main responsibility for the state of the environment today lies with the developed countries which must take corrective action to change their wasteful consumption patterns. Developing countries, however, were willing to participate in any global action, but not at the cost of their development.

Additional resources: The bottom line was really the additional resources needed for action on a global scale and Mr. Kamal Nath made it clear that India's stand was that all such funds would have to be mainly found from the developed countries. India has already contributed $40,000 to the Global Environment fund and billions of dollars would be needed for any meaningful action. Also, such a fund should be free from donor or recipient bias, he said. Most of all, environment should not be used to pin additional conditionalities on aid and trade.

Poverty and development cannot be delinked from environment issues and this had been clearly brought out in the 1988 report of the World Commission on Environment and Development.

Environmental standards should be harmonised at the global level and India could accept time-bound action programmes only if the required resources are quantified and identified. Any such fund must be democratically administered and not donor dominated. "It is not a charity, the donor countries would be essentially paying for the damage they have caused to the environment and the action we will be taking as a result," Mr. Kamal Nath clarified.

India clearly felt that the developed countries were not only stressing the responsibility of developing countries in the resolution of environment problems of global significance but appear to be shifting a disproportionate share of the burden for the protection and regeneration of the environment to the developing countries. This was being done in the face of increasing scientific evidence that rapid industrialisation leading to increasing emissions of carbon dioxide and other gases were causing the greenhouse effect.

Budgetary priorities: This is the first time that the government here has clearly admitted that environment concerns were being used by the developed countries to insist on reallocation of budgetary priorities, cuts in military spending, raising of price or energy, and encouraging resource flows to the private sector. Also, for the first time the government has made it clear that in the name of future generations the developed countries were

not taking fully into account the present imbalances in global patterns of production and consumption and the framework of the Earth Summit leaves no scope to discus the issues of external indebtedness and eradication of poverty. There must be greater focus on the earlier resolution that states that the promotion of economic growth in developing countries was essential to address the problem of environmental degradation.

As far as ozone depletion is concerned, the pattern of global emissions of CFCs tell almost the whole story. Of the total estimate of 1.2 million tonnes of emissions of CFCs, 300,000 tonnes are emitted by the United States alone. India's share is only 6,000 tonnes a year. All the developing countries together add up to five per cent of the total emissions. And even these have occurred in recent years while the industrialised countries have bee emitting CFCs for the last five decades. India would join the Montreal Protocol on ozone layer only after the June 1990 amendments come into force. And our consumption to date is far below the standards prescribed.

LIBYA

Al-Qadhdhafi Welcomes U.S. Decision on Ozone Protection

LD1302184192 Tripoli JANA in Arabic 1650 GMT 13 Feb 92

[Text] Tripoli, 13 Feb (JANA)—The brother leader of the revolution has made a statement to JANA following the U.S. decision to phase out the production of ozone-destroying chemical materials. He said: The United States' decision to bring forward the phasing out of the production of chemical materials which damage and destroy the ozone layer follows repeated appeals, the latest of which was Libya's historical proposal to the world, through the United Nations, urging among other things the need for firm protection of the environment, particularly the ozone layer. I hope that all industrialised countries will follow the example of the United States and put an end to environment-damaging industrial activities, refrain from the destruction of forests, and combat desertification and locusts.

Ecological Prospects Under New Economic Order Examined

92WN0301A Moscow PRAVDA in Russian 8 Feb 92 p 2

[Article by Doctor of Technical Sciences Sergey Pegov: "Breathe Without Inhaling: Comments of a Pessimist"]

[Text] **Ecology cannot complain about insufficient attention from the politicians and mass media. Suffice it to recall our latest election campaign or peruse the press over a few weeks. "Terrible" facts and figures in particular are eagerly used by our politicians and public figures and the press, and likewise there is no lack of technical and economic proposals to resolve the ecological problems of the age in a fundamental way.**

Closed-cycle and low-waste technologies, an ecologically appropriate structure for the economy, payments for resources and fines for pollution, the protection and restoration of nature in the wild—the usual collection of ecological programs being debated.

All of these things are quite correct and would not cause any objections were it not for one defect, namely, that all these programs require enormous capital investments. The totals vary between 135 billion to 500 billion rubles (in 1988 prices) over 15 years. Unfortunately, that money is simply not now available, even though these estimates have been lowered. Over the past 20 years the United States has invested more than $1 trillion for environmental protection, including state spending and spending by the private sector prompted by appropriate legislation and taxes.

But the question is: Has this helped or not? From our standpoint, yes, from the standpoint of the Americans, not much. Yes, they say, we have resolved the problem of cleaning up gas emissions and dumping in bodies of natural water, and saving energy, but we have been left with the problem of destroying very toxic waste and domestic waste, and contamination of ground water and soil, which are significantly more expensive.

It looks very much as if we want to follow them down that road. And although in the popular folklore there is parable about treading on rakes, this is what we have to do since too many structures, first and foremost the sector monopoly structures, need this money. Here we also understand that environmental protection is an expensive business, and it is disadvantageous to do it from profits. And no terrible facts or warnings will work here.

So here we come to the basic reason for all ecological problems. We ourselves, our value systems, oriented on consumption, and the very organization and laws of human society, which are virtually isolated from the organization and the laws for the development of nature, and our scientific and technical policy which permits the processing of more than 10,000 metric tons of natural resources to produce 1 (one) automobile, and the production of more than 15,000 new chemical compounds that are incompatible with nature—these are the basis of the confrontation with nature.

[Boxed item: A total of 150 million rubles from local budgets (but there is no money there) has been allocated for environmental protection.]

Hence also the main consequences. Degradation of renewable natural resources—land, water, forests, the animal world—that are the basis for any socioeconomic development.

The change in the chemism of the environment and, as a consequence, the depression of the body's immune status, means an increase in traditional diseases and the appearance of new ones (including AIDS).

Processes of economic and technical development in a society and the laws for the development of nature have courses that operate over different time periods; they differ by factors of five to 10. Trying to solve ecological problems with the aid of present-day laws means to be doomed always to resolving partial tasks arising as the result of nature's reaction to our, from its standpoint, fiddling attempts to "protect" it. Perhaps it should be done the other way round? To understand what it needs from us, and to build ourselves and our laws in accordance with its requirements?

We are now moving toward the market. There are no objections here; it is precisely the market that provides the living standard that the peoples of the countries making up the former USSR deserve. But there is another great danger, namely, that we will march along the path trod by Western civilization. By sharply accelerating economic development without strict government regulation over the use of natural resources, when, for example, if the owner of a piece of land cuts down a couple of "his own" trees he is punished by an astronomical fine, in the late 1960's the market led to an ecological crisis in the developed capitalist countries. It took 15 or 20 years and trillions of dollars to stabilize and slightly improve the situation.

Giving due consideration to the level of our technological development, our understanding and management of market structures, and our culture, at last we are quite prepared to follow along this processional way with its mistakes and losses.

At the same time we have a unique opportunity to switch to a new model of development—ecological development, which is now being widely debated in the world and which was discussed at the 1992 conference in Brazil.

What is required for this? It is necessary to stop thinking about ecological policy from the positions of personages enjoying some position of power. Nature does not forgive these kinds of mistakes. It is necessary to stop perceiving the concept of development in purely economic terms, merely as a concept for increasing consumption. We must bring our technological cycles as

close as possible to the demands of nature: All resources that are processed and used and all waste should be included in natural biogeochemical cycles, without disrupting them. It is necessary to pursue an ecological policy that is finally given priority in overall state policy, and not only from the positions of organizations that are responsible for devising and implementing that policy, but from the positions of the state budget. The most complicated thing is the need to change ourselves, our upbringing, our system of education, and our understanding of values as opportunities to acquire as many sausages, cows, cars, and yachts as possible. The experience of our Western partners shows that this is a road that leads to a dead end.

While I am perfectly well aware that there is a certain utopian flavor to what I have written in this article, particularly at the "present" time, I can say only one thing in addition. Sooner or later these issues will still confront us or our grandchildren. Degraded land, contaminated water and air, and destroyed forests will ultimately themselves change ecological policy, and also the numbers of people living on Earth, even under conditions of an absolutely peaceful existence.

CIS Agreement on Hydrometeorology Cooperation Signed

LD0902220892 Moscow TASS International Service in Russian 1050 GMT 9 Feb 92

["Agreement on Cooperation in the Field of Hydrometeorology"]

[Text] The participants in the agreement, henceforward called the high contracting parties,

Recognizing the importance of the regular receipt and use of hydrometeorological information for ensuring the safety of the population, for the effective running of the national economy, and for ensuring defense capability;

Conscious of their responsibility for ensuring safe and propitious living conditions and timely protection from natural disasters;

Noting that the development of hydrometeorological processes is dynamic and takes place without regard for state borders and that the correct interpretation of hydrometeorological data requires the use of information from large territories that do not coincide with administrative or other divisions;

Conscious of the need to carry out coordinated fundamental and applied research of interstate importance and interest; and

Desirous of coordinated actions in the field of the exchange of hydrometeorological information

Agree on the following:

Article 1

The high contracting parties will devise and implement a unified policy in the area of the acquisition and use of hydrometeorological information, including compliance with a coordinated observation methodology and process for gathering and circulating information, bearing in mind the international agreements worked out previously and concluded by the former USSR.

Article 2

The high contracting parties pledge to ensure in a concerted and coordinated manner:

The regular exchange of hydrometeorological information, including in the event of natural disasters;

A coordinated methodology of hydrometeorological observations;

A coordinated process for the gathering and circulation of hydrometeorological information;

Scientific research of common interest (the development of long- term weather forecasts, methods of actively influencing meteorological processes, and others), and research into global phenomena (climate change, destruction of the ozone layer, etc.);

The organization of the provision of hydrometeorological information for the armed forces;

The joint training of personel in the field of hydrometeorology;

The fulfillment of international obligations and cooperation with the World Meteorological Organization.

Article 3

In order to implement the clauses envisaged in Article 2 of this agreement, the high contracting parties have agreed to create:

The Interstate Council for Hydrometeorology as a coordinating institution of the Commonwealth of Independent States carrying out functions in the areas of activity enumerated in Article 2;

The Interstate Council for Hydrometereology consists of heads of the hydrometeorological services (committees or directorates) of the member-states of the agreement, and functions on the a parity basis.

A permanently functioning executive committee should be set up under the Interstate Council for Hydrometeorology as its working body.

The powers of the Interstate Council for Hydrometeorology and its executive committee and the procedure for their financing and work are set by a protocol which is an integral part of the agreement.

Article 4

Participation in this agreement does not affect the rights and obligations of the high contracting parties in accordance with previously concluded treaties or with treaties that may be concluded in the future in developing the principles of hydrometeorological services on which the present agreement is founded.

Article 5

The high contracting parties will jointly devise the policy, rules, and procedures relating to responsibility for violation of the clauses of the present agreement.

Article 6

The present agreement comes into force on being signed by those empowered by the high contracting parties.

Article 7

The present agreement is open to be joined by any other state committed to achieving the objectives and tasks of the present agreement.

Article 8

Any of the high contracting parties can withdraw its participation in the present agreement by notifying the depository in writing at any time on the expiry of five years from the date this agreement coming into force. The withdrawal becomes effective for this contracting party on 31 December of the year following the one in which the depository was notified about the withdrawal.

Article 9

Concluded in Moscow on 8 February 1992 in one copy in the Azeri, Armenian, Belarussian, Kazakh, Kyrgyz, Moldavian, Russian, Tajik, Turkmen, Uzbek, and Ukrainian languages. All texts have equal force. The original copy is kept in the archives of the government of the Republic of Belarus, which will send a certified copy of it to the participants in the present agreement.

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The agreement is signed by representatives of Azerbaijan, Armenia, Belarus, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Turkmenistan, and Uzbekistan.

On signing, the representative of Turkmenistan made the following note: to omit the proposal for creating a working body—the executive committee—acting on a permanent basis.

CIS Adopts Agreement on Ecology

LD0902194992 Moscow TASS International Service in Russian 1017 GMT 9 Feb 92

["Agreement on Cooperation in the Sphere of Ecology and Environmental Protection"]

[Text] The parties to the agreement, referred to henceforth as the high contracting parties, recognizing the right of each individual to a natural environment favorable to life and ecological safety; conscious of their responsibility before their peoples and the peoples of other countries as well as future generations for ensuring favorable conditions for life and well-being; on the basis of the right of each state to establish procedure for using the earth, its underground resources, forests, waters, the plant and animal world, and other natural resources; proceeding from an understanding of the integrality and indivisibility of the natural environment and the united interests of all states in protecting and steadily developing it; noting that borders between states do not coincide with natural ecological borders and basin borders; and acknowledging that economic and other activity on the territory of one state must not damage the natural environment, quality of life of the population, or economic activity of other states;

Guided by the need to pass agreed legal measures in the sphere of the ecology and environment protection, and also agreed standards and ecological norms to ensure the ecological safety and well-being of every human individual;

Conscious of the need to carry out coordinated fundamental and applied ecological research;

Desirous of coordinated action in the sphere of the use of nature and in solving ecological problems;

Agree upon the following:

Article 1

The high contracting parties will elaborate and carry out a coordinated policy in the sphere of ecology and protection of the natural environment (protection and use of land, soil, mineral resources, forests, waters, atmospheric air, the plant and animal world, the natural resources of the continental shelf, economic zone, and open sea beyond the limits of national jurisdiction), taking into account the international agreements concluded earlier by the USSR (list attached).

Article 2

The high contracting parties undertake on their territory to:

Draw up and pass legislative acts, ecological norms and standards in the sphere of the use of nature and environmental protection;

Keep a census of natural resources and their use according to quantitative and qualitative indices and carry out ecological monitoring;

Implement effective state control of the conditions and alteration of the natural environment and its resources;

Take measures to renew wildlife resources and to preserve and restore biological variety;

Develop a network of nature reserves, sanctuaries, national parks, and other specially protected territories and natural complexes, and restrict economic and other activity in the zones adjacent to them;

Make an all-round assessment of the ecological effects of economic and other activity conducted on their territories;

Create and maintain special forces and resources essential for preventing ecological catastrophes, disasters, and accidents, and for dealing with their aftermath;

Carry out expert ecological inquiries into programs and forecasts for the development of productive forces, investment, and other projects;

Take measures to develop ecological education and upbringing, and to ensure glasnost in ecological matters;

Set scientifically substantiated quotas for using natural resources for economic and other activity, and also ceilings on their irretrievable removal, taking account the need to ensure general ecological security and prosperity;

Keep state lists of endangered species and provide material for keeping an interstate list; and

Observe commitments stemming from international agreements previously adopted by the USSR and the republics.

Article 3

In order to conduct coordinated policies in the area of ecology and protection of the natural environment, the high negotiating parties have decided that it is necessary:

To harmonize legislative acts, ecological norms, and standards that they adopt in order to protect the natural environment;

To set up and implement joint interstate programs and projects in the area of the use of natural resources and protection of the natural environment and ecological safety, including programs for safe destruction and neutralization of chemical and nuclear weapons, and of toxic and radioactive waste;

To apply the same approaches, criteria (indicators), methods, and procedures in assessing the quality and control of the state of the natural environment and of the human influence exerted upon it, ensuring the compatibility of the data on the state of the natural environment on an interstate and international scale;

To use the agreed methods for the evaluation of the effects of economic and other activity on the natural environment;

To standardize methods for regulating man's effects on the natural environment;

To use agreed methods for monitoring genetic changes in communities of living organisms and the protection of rare and disappearing species and their natural habitats;

To create and support an interstate ecological information system and present information for use by other high contracting parties;

To draw up and implement agreed scientific and technical policies in the sphere of ecology and the protection of the natural environment, while carrying out coordinated basic and applied ecological research;

To elaborate and use general principles to stimulate activities for the protection of nature and sanctions for violations of legislation to protect nature;

To be guided by general methodological requirements when carrying out ecological examinations of programs and forecasts for the development of productive forces and investment and other projects; and,

To draw up the conditions and procedures for using special forces and means to render mutual aid in the event of emergency ecological situations, for the elimination of the their consequences, and for participation in corresponding international actions.

Article 4

In order to fulfill the provisions set out in Article 3 of this agreement, the high contracting parties have agreed to set up an interstate ecological council and, under it, an interstate ecological fund for implementing coordinated interstate ecological programs, primarily for dealing with the aftermath of ecological disasters. The procedure for the creation and the operation of the interstate ecological fund is to be determined by the interrepublic ecological council.

Article 5

The high contracting parties entrust the interstate ecological council with:

Coordinating and conducting the agreed policies in the spheres of ecology and the protection of the natural environment;

Conducting, with the participation of representatives of the sides involved, the ecological examination of programs and forecasts for the development of production forces and of investment and other projects, the implementation of which touches on or may touch upon the interests of others and more high contracting parties;

Rendering assistance in the resolution of ecological disputes between high contracting parties;

Keeping an interstate red book and preparing proposals and materials for an international red book; and

Jointly determining with the high contracting parties involved the conditions and procedures for their participation in carrying out obligations ensuing from international agreements adopted previously by the USSR in the spheres of ecology and the protection of the natural environment.

The leaders of the nature protection departments of the states participating in the agreement of independent states are members of the interstate ecological council, which functions on the basis on equality and adopts its decisions on the basis of consensus.

The powers of the interstate ecological council and of the working bodies set up by it and the procedures for the financing of these are set out in protocols that are an integral part of the agreement.

Article 6

Participation in this agreement does not affect the rights and obligations of the high contracting parties in accordance with treaties concluded previously or in accordance with treaties that may be concluded in the future in developing the principles of protecting the natural environment on which the present agreement is founded.

Article 7

The high contracting parties will jointly devise the policy, rules, and procedures relating to responsibility for violations of the clauses of the present agreement.

Article 8

The present agreement comes into force on signing.

Article 9

The present agreement is open to be joined by any other state committed to achieving the objectives and tasks of the present agreement.

Article 10

At the end of five years from the day the present agreement comes into force, any high contracting parties can renounce participation in the present agreement, after having notified the depository in writing. The renunciation of participation comes into force on 31 December of the year following that in which the depository was notified.

Article 11

Concluded in Moscow on 8 February 1992 in one copy in the Azeri, Armenian, Belarussian, Kazakh, Kyrgyz, Moldavian, Russian, Tajik, Turkmen, Uzbek, and Ukrainian languages. All texts have equal force. The original copy is kept in the archives of the government of the Republic of Belarus, which will send a certified copy of it to the states participating in the present agreement.

***

The agreement is signed by representatives of Azerbaijan, Armenia, Belarus, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Turkmenistan, and Uzbekistan.

On signing, the representative of Turkmenistan made the following note: to omit from Article 4 the sentence on the setting up of an interstate ecological fund and from Article 5 the sentence on the setting up of working bodies and the procedures for their financing.

CIS Rio-92 Reports Show Distressing Ecologial Situation

92WN0299A Moscow SELSKAYA ZHIZN in Russian 13 Feb 92 p 3

[Article by Leonid Kruglov, SELSKAYA ZHIZN scientific observer: "Ecological Notebook: There Is No Other Choice"]

[Text] **The UN Conference on Environment and Development will be held from 1 through 12 June of this year in Rio de Janeiro. Scholars, social scientists, and heads of state will gather to discuss the alarming ecological situation that has been created on earth. Representatives of our Commonwealth will also participate in the global forum. And they will not go to Brazil empty-handed. Each of the independent states is preparing its own national report.**

In all probability, a constituent part of the national reports will be the extensive information (more than 1,000 pages of a two-volume report) prepared by the most outstanding domestic experts in the areas of natural sciences, public health, economics, and ecology.

However that may be, for the first time in many decades the true ecological situation that has developed on a territory covering 22 million square kilometers will be widely publicized. This information is impartial. If figures are given, they are absolute and not in percentages of 1913. If facts are adduced, they are sometimes simply depressing. They are the ones that have always been covered up in order not spoil the "radiant picture of the construction of a bright future" and "not to frighten the people."

On the path of this information to the people there has always been a powerful barrier in the form of a mighty department which existed until recently: the USSR State Committee for Hydrometeorology and Environmental Control. This is the patrimony of academician Yuriy Antoniyevich Izrael, whose activity was not advertised for decades, and journalists were not allowed come closer than the range of a cloud-seeding gun to his materials.

It was impossible for the ordinary citizen to obtain precise ecological data on the condition of the soil, water, and air, which was gathered with the help of scientific satellites and ships standing 24-hour watch at all latitudes, meteorological missiles, radio-sounding equipment, and other kinds of costly equipment created

with coins extracted from the taxpayer's fat purse. And that is how we lived, not knowing what kind of gases we were breathing, what kind of liquids we were drinking, how great the pesticide level was in the meager food products we won after battling the waiting lines. All this information was gathered and stamped "For Official Use" and hidden away in safes out of habit.

But even those hard-earned crumbs that were sometimes leaked to the air waves or press passed through the fine "sieve" of the Main Administration for the Protection of State Secrets in the Press [Glavlit], may it rest in peace. And the Glavlit always had a watchful eye. For example, an oil pipeline burst where it intersected with a branch of the Sukhona River. Hundreds of cubic meters of fuel poured into the water, killing everything it came into contact with. But the newspapers reported: "At the location of the accident on the main line there was partial pollution of an insignificant section of one of the southern rivers."

And everything having to do with the radiation situation was kept strictly secret. The departments here, including the Ministry of Power and Electrification, would defend the honor of their uniform to the death. And three days after the Chernobyl disaster local authorities, in order to demonstrate that "our peaceful atom is the most harmless atom in the world," organized the First of May marches on Kiev's Kreshchatik Street. Everyone now knows what this hypocrisy led to.

After many years of being used to reading about everything having to do with the ecology between the lines, the information presented at the conference in Rio de Janeiro seems like a confession. But what are the reasons for the negative ecological consequences that have become so widespread on the territory of the former USSR? The very principle of management which we are now unsuccessfully trying to reject includes justification for ignoring environmental protection measures. And it is not that erecting another industrial giant without purification installations would make the project less expensive while immense territories experience the consequences of environmental pollution. The reasons lie in the ideological justification for such actions. What difference do filters and sedimentation tanks make if the plant has to produce products which, as long as we were politically and economically isolated, we could not obtain for any amount of francs or dollars? Facilities for heavy industry, mainly the defense industry, were constructed at any price.

During the years of the Great Patriotic War 1,700 large enterprises were moved beyond the Urals and into Siberia and literally started up as soon as they were unpacked. The people were winning a victory over fascism and there was no time to observe any ecological normatives. Nor had any been developed at that time either—either in our country or in the rest of the world. Nobody even thought about the impending global pollution of the environment. This danger was not even predicted until clear signs of an ecological crisis appeared during the sixties.

By the beginning of the seventies it was becoming increasingly apparent that the unfavorable condition of the environment was one of the major factors retarding the development of our productive forces and improvement of the well-being of the people. Alas, the management mechanism was such that, in order to maintain sufficiently high growth rates, the USSR had to draw increasingly larger volumes of natural resources into production. This extensive path of development led to exhaustion of natural resources, a reduction of the productivity of the land, pollution of the rivers and atmosphere, erosion of the soil, and, as a result, human diseases caused by pollution of the environment.

For example, the main source of hard currency revenues for the state treasury was oil. It made it possible to keep the unbalanced economy afloat. So it had to be extracted at any price, and the more and faster, the better! As a result, only 62 percent of the oil was thoroughly processed during the eighties, while in the United States 92 percent was. Enterprises of the oil refining industry, with their obsolete equipment, discharged about 1.2 billion cubic meters of polluted wastes into the rivers each year, and more than 2.5 million tons of hydrogen sulfide alone went into the atmosphere.

The list of similar sad statistics could go on endlessly, regardless of which branch of the national economy you take.

No less serious blunders can be observed in agricultural production. The large investments in fixed capital of the agroindustrial complex did not produce results. Each percentage point of growth of output from animal husbandry and crop growing during the seventies and eighties was achieved only with an increase in expenditures of eight to ten percent. As a result, agricultural use of nature was transformed into a capital-, energy-, and material-intensive branch with extremely low economic effectiveness and a constantly growing burden on the natural complexes. The backward technological base for the production and processing of products led to annual losses of no less than 30 percent of the crops.

The Commonwealth has immense riches—326 million hectares of natural grazing land. It would seem that on these pastures it would be possible to keep fat herds and flocks and to flood the cities with meat and dairy products and woolen and leather items. Unfortunately, 130 million hectares of this gigantic area are overgrown with shrubs or are marshy, and the average yield of hay in the country as a whole is only five quintals per hectare. In order to keep animal husbandry going, in 1989 the farms were forced to use 36 percent of the area of arable land for producing forage.

It would seem that the solution should be sought in irrigation farming. But this is a blind alley. Its present

volume long ago exceeded the ecologically permissible limits for taking water from the river systems of the Caspian, Azov, and Black Seas without returning it, not to mention the Aral, which, having lost the Amu Darya and Syr Darya, divided into two bitterly saline, dead bodies of water. The Aral area itself has become an ecological disaster zone.

Alas, the land management methods that are used make it impossible to use organic fertilizers extensively, to introduce biological methods of plant protection, to lime the soil, or to develop agricultural land improvement. Even such a simple and available method of improving the soil as clear fallow is disappearing.

And heavy industry is no better with respect to the ecological level. In 1989 stationary sources from industry polluted the atmosphere with 17 million tons of sulfur dioxide. The air the people breathe in the cities contains such a variety of substances that are harmful to the health that people sometimes speak of it as a national disaster. According to figures for 1990, in 420 cities of the Commonwealth the average concentration of the entire range of harmful substances in the air basin reached the danger point. There are even cities that hold "records" for the highest levels of pollution of the atmosphere. Dozens of large cities have been included among them over the past five years.

Moreover, pollution of the soil from industrial discharges of dangerous substances into the atmosphere has now been observed on an area of 135 million hectares, including 80 million hectares of agricultural land.

The reports from the states of the Commonwealth also reflect the radiation situation which has developed in their territories. It has been affected by the nuclear testing conducted in open space up until 1962. The accident at the nuclear combine in Chelyabinsk Oblast in 1957 and the recent Chernobyl disaster made their "contributions" as well.

In response to a number of ukases of the president of Russia, decontamination is now being conducted on a number of polluted territories. Social problems related to people's habitation of places where the soil and water are polluted with nuclides in doses dangerous to the health are also being solved.

In the opinion of A.V. Yablokov, Russian Federation state adviser for ecology and public health, it is socially preferable not to move thousands of people from their homes, which causes severe nervous strain, but wherever possible to conduct extensive measures to improve conditions in the localities.

The ecology and human health are inseparably linked. The main indicator of well-being or lack thereof in this sphere is the life span. Deterioration of the health of the population living on the territory of Russia is a sad fact.

The average life span in the republic decreased from 70.4 years, which was the average for the sixties, to 69.5 in 1990. A resident of the United States today lives six years longer, and of Japan—eight years. Forty percent of the men who died in Russia in 1990 had not reached pension age.

In 1989, 22.7 out of every 1,000 children born in the Commonwealth states died before they were one year old. And the child mortality rate in the rural areas was 27.4 while in the city it was 19.4. This is 2.4-4.4 times higher than in the United States, France, Great Britain, the FRG, and Japan. In regions of ecological disaster the child mortality rate and the birth of children with congenital defects reached catastrophic levels. In 1990 in the Commonwealth states as a whole the number of births decreased by 759,000 as compared to 1968, and this is 16.8 per 1,000 population.

There is only one conclusion and it is clear. It is necessary to radically change the entire system of environmental protection and the efficient use of natural resources on the unified geographic and ecological territory occupied by the states of the Commonwealth. Up to the present the indicators of economic growth have not taken into account the damage caused to the natural complexes by economic activity. Fines for pollution of rivers, the atmosphere, and the land, and for the destruction of the animal and plant kingdoms are purely tokens. It is time to change over to full reimbursement for real ecological losses, including payment for restoration of disturbed ecosystems. In order not to be ruined, the enterprises will be forced to introduce waste-free, resource-saving, and ecologically pure, meaning modern, technologies.

One can hope that the national reports from the states of the Commonwealth which will be submitted to the conference in Brazil will form a unified concept for the use and development of nature. This is the only way we will be able to convince the world community that one-sixth of the earth's land will not be a source of global pollution.

Scientist Views Potentially 'Catastrohpic' State of CIS Environment

LD2202202192 Moscow TASS in English 1158 GMT 22 Feb 92

[Text] Berlin, February 22 (ITAR-TASS)—Serious attention should be paid to the state of the environment on the territory of the former Soviet Union. If under public pressure no decisive measures are taken to control disposal of industrial waste the ecological situation in the Commonwealth of Independent States (CIS) may prove catastrophic, a representative of the Institute of Geography of the Russian Academy of Sciences, Boris Kochurov, said here on Friday in an international forum of specialists in nature conservation technologies, reported ADN News Agency.

According to the scientist, even at present 36 percent of the CIS population is already experiencing pernicious influence of substances polluting the environment. The

residents of cities are most affected by the pollution. About half of the people living in industrial centers belong to a zone of an ecological crisis, though they do not have any knowledge about it.

It was noted that on the CIS territory there are about 200 regions with a bad ecological situation covering the total area of 4 million square kilometers. Ill-considered human activities have led to the pollution of every fifth meter of the ground. Among the worst affected regions named were: the Russian Far East, Western and Eastern Siberia, northern areas of Russia's European part, Moldova and the Urals. For example, Moldova misuses inorganic fertilizers, and an immense harm is being done to Western Siberia by bursting oil pipelines and uncontrolled fountains of "black gold" from oil wells, Boris Kochurov said in his address.

Uranium Production Remains Interrepublic Effort

LD1402115792 Moscow Russian Television Network in Russian 2000 GMT 13 Feb 92

[Video report by correspondent I. Shestakov, including remarks by V. Pirogov, deputy general director of Yuzhpolimetall enterprise, on uranium production—from the "Vesti" newscast]

[Text] [Video shows factory scenes, interior and exterior, throughout]

Even though the last reactor that produced the filling for nuclear bombs has been stopped, uranium is still nevertheless being mined. The uranium industry is the only one that has proved impossible to split up during the division of the Union, simply because not a single republic—except perhaps Russia—is able to produce pure uranium unaided. The enterprises which take part in the production cycle are scattered throughout the country.

Total production costs run into thousands of millions of dollars. One of these chains starts in Kazakhstan, where uranium ore is mined. Later it is sent on to the factories of Yuzhpolimetall in Kyrgyzstan, where the ore undergoes primary processing. [Video shows factory nameplate: Southern Polymetallic Combine production association—Hydrometallurgical works, then yellow powder in a machine and more being held by a worker] This powder is rightly known as product No. 1 among the workers. It is real uranium.

[Video shows correspondent interviewing worker]

[Correspondent] How many bombs are made from your uranium?

[Worker, laughing] A lot.

[Shestakov] Now that missiles are no longer being produced the mining of uranium has been cut back sharply. It has been decided to sell the surplus to the West.

[Pirogov] We are selling to two countries so far—the United States and Britain.

[Shestakov] [Video shows barrels in storage] The quantity of barrels horrifies the U.S. uranium-producing companies and their trade unions. The CIS possesses nearly half of the world's reserves of uranium, and the price of unenriched Russian uranium on the market is just $20. What is particularly important is the fact that the uranium industry is the only sector in the Union that never used to fall down on the mining plan. [Video shows sign: "Danger- testing]. The uranium on offer is of high quality and is produced by the most advanced technology. In this we really have outstripped the Americans. Now the Americans think that the Russians are driving down prices in the market and have complained to the international trade commission. If the commission acknowledges that the prices really are too low, then the European and U.S. market will be closed to our uranium. [Video shows notice: "Forbidden zone"]

Yeltsin Gives 'Assent' to Controversial Power Projects

MK2702120092 Moscow NEZAVISIMAYA GAZETA in Russian 27 Feb 92 p 1

[Yuriy Meshkov report: "Ecology: Yeltsin Has Given 'Go- Ahead' to Latest Project of the Century"]

[Text] Russian President Boris Yeltsin has given his "assent" and signed an appeal from V. Petrov, chairman of the Gornyy Altay Republic Government, and V. Chaptynov, chairman of the republic's Supreme Soviet. The eminent leaders suggested that Yeltsin build the Katunskaya and Chemalskaya GES's [hydroelectric power stations]. The letter says that "the first phase of the GES's could be built in five or six years and construction completed within eight or nine years. The cost of the Katunskaya and Chemalskaya GES's is estimated at 1.8 billion rubles [R], at 1990 base prices." During the first phase Gornyy Altay's emissaries ask the president for help in raising R70-80 million.

Over the last five years specialists have conducted several state and public examinations. They all produced highly negative findings regarding the advisability of implementing another "project of the century." Even the briefest list of counterindications is enough to see the absurdity of the GES construction workers' plans in this part of Gornyy Altay: increased seismic activity; deposits of mercury, arsenic, and other toxic elements in the flood zone; the inevitable destruction of such scarce fertile land... But that did not stop the construction workers: Having completed the preparatory work in full, they are only waiting for a signal to start the latest magnificent assault on nature and common sense.

"I am sure that Yeltsin's signature has been acquired by fraud," Mariya Cherkasova, director of the Socioecological Union's Center for Independent Ecological Programs, said. "Something else also surprises me: The project's authors did not succeed in the past in getting

the 'go-ahead' from Union Premier Ryzhkov, and they were unable to persuade Russian Premier Vlasov either. Yet now the letter palmed off on Yeltsin has been signed and is being passed around various offices."

Everything indicates that this action has been prepared extremely thoroughly. The next day "intermediaries" received authorization from Vice Premier Gaydar. But NEZAVISIMAYA GAZETA's correspondent learned that a protest is being prepared within the apparatus of Aleksey Yablokov, Russian state counselor for ecology and public health, regarding the government's actions.

State of Radioactive Waste Disposal in Russia Examined

92WN0270A POLYARNAYA PRAVDA in Russian 3 Dec 91 p 2

[Interview with V. A. Perovskiy, chief specialist of the All-Union Planning-Design, Scientific Research and Technological Association (VNIPIET) by Correspondent A. Koptyayev: "One Can Impose a Moratorium on Nuclear Explosions, but What Is To Be Done With the Wastes of the Nuclear Power Industry?"]

[Text] On 21 April 1990 our newspaper, under the headline "Without Illusions. . . ." published an interview with a specialist for the handling of radioactive waste. Sufficient time has passed, readers have literally been inundated with information from various sources about this acute subject, at times very contradictory and for the most part negative.

Today the editors return to the discussion begun during the past year. The previous interlocutor is the chief specialist of the All-Union Planning-Design, Scientific Research and Technological Association (VNIPIET), V. A. Perovskiy.

[Correspondent] Vyacheslav Aleksandrovich, what is the true situation with the mentioned problem?

[Perovskiy] The reports on the problem of radioactive waste that have appeared recently are stupefying. The harassed society is receiving new shocks. It frequently has myths and suspicions foisted on it, there is a manifestation of carelessness with respect to the facts, the negative aspects are overemphasized in every conceivable way, and the positive ones are pushed into the shadow. Nevertheless, there are reasons for distrust in nuclear power, since the problems of handling radioactive waste are being solved very slowly. Intolerably slowly and for the time being in a very primitive manner.

[Correspondent] The necessity of measures is evident. What is being done?

[Perovskiy] Somehow it has remained unnoticed that the questions of the burial of radioactive waste were extensively discussed at the First Congress of RSFSR People's Deputies and there, at an open session chaired by B. N. Yeltsin, the decree "On the Development of a State Program for Handling Radioactive Waste and Spent Nuclear Materials and Urgent Measures for Improving the Radioecological Environment on the Territory of the RSFSR" (61-1 dated 22 June 1990) was adopted. Through this act the problem was given the status of special state importance. The republic's Council of Ministers was charged with the study of concrete environmental protection measures and the inspection of all burials existing on the territory of Russia, the acceptance of waste from other republics and countries was prohibited, and, what is of no small importance, prior to the acceptance of a program the construction of new nuclear power installations was not allowed, beginning 1 January 1991.

I had the occasion to take part in the preparation and formation of the text of the decree. Quite a few hopes were connected with the appearance of this document, and above all in the sphere of practical measures. Also proposed was the creation, under the Presidium of the RSFSR Supreme Soviet of an expert group for the assessment and monitoring of decisions that are taken in regard to the handling of waste and nuclear materials on the part of the departments. Unfortunately, the intentions of the Russian parliamentarians were not materially reinforced and for the time being remain in the state of free flight.

Again we have a situation where they are losing everything—the most important national program is "exhausted" and postponed forever, the public is irritated, and the specialists, in order not to remain unemployed, are forced to seek another occupation.

[Correspondent] Where is the way out?

[Perovskiy] Unfortunately (the next time), we are encountering the imperfection of our legislation. If, for example, the Congress of the United States already in 1982 adopted a law on state policy on radioactive waste, a special administration of the same name was created, whose head is appointed by the president, and the functions of the federal government, the states, companies and enterprises are precisely defined and delimited, we do not have a similar state mechanism, nor the promised law on the use of atomic energy and nuclear safety. This is why the rights and duties of authorities in the siting of nuclear industry installations on their territory remain eroded, the principles of the financing of capital expenditures and corresponding compensations have not been established, the responsibility and procedure for mutual assistance of the executive organs of power with the administration of enterprises—owners of nuclear industry installations, and a great deal more, have not been regulated. The cooperation must be of the kind that the interests of the region are not only not infringed upon, but that the development of these or those directions of the nuclear industry and power engineering are also encouraged.

In this connection, the Kola Peninsula presents a unique possibility for the perfection of such a model, since

nuclear installations and technologies of the largest union industries are concentrated here: The Ministry of Atomic Power and Industry, the Ministry of Shipbuilding Industry (which has been abolished, but with shipyards for the repair of nuclear-powered ships that have remained in reality), the still existing Ministry of Maritime Fleet, and, finally, the Northern Fleet. The necessity of concentrating efforts and responsibility within the limits of a single region is obvious.

As a first step in this direction, the All-Union Planning-Design Scientific Research and Technological Association is ready to beginwithout delay the development of a general plan for handling radioactive waste and spent nuclear materials for the Kola Peninsula. In so doing, the designing, construction, and subsequent operation of a regional burial must be regarded as one of the elements of this plan.

Corresponding proposals addressed to the oblast Soviet of People's Deputies and to other interested organizations, including the steamship line, were sent already in August. So that it is up to them to speak.

The Murmansk Oblast Soviet has responded to this proposal and even proposes to carry out the selection of the projects on a competitive basis.

[Correspondent] There are many discussions about the burial. The most improbably places have been named. . . .

[Perovskiy] The necessity of a regional burial, capable of receiving the waste that is formed and securing their reliable isolation at least for 100-300 years, is obvious, but the place for its installation has not yet been determined (as there is also no working design).

The reports about Dalniye Zepentsy that have appeared in the press are far from reality, but one can understand the anxieties of the people of Murmansk. In the course of the research that was conducted, the Dalyiye Zepentsy Rayon was named, but during the concluding examination this position was declined—it was recognized as unjustified and erroneous. Still more cautiously went the discussion of the prospects of placing the wastes on Novaya Zemlya, and, regardless of the high level of the conference, no one of those assembled risked making any sort of complete recommendations regarding this question. True, as always the position of the Murmansk Steamship Line is surprising because of its categorical nature. In response to the inquiry of the sixth session of Murmansk Oblast Soviet of People's Deputies, its representative, A. V. Dronchenko, without any hesitation, named Novaya Zemlya as the place for the preservation of radioactive waste. It is incomprehensible how one can make plans behind the back of the Arkhangelsk administration as regards territory under its control, especially after the moratorium on the testing of nuclear weapons there declared by the President of Russia?! Besides, the use of the Arctic for the burial of radioactive waste affects the interests of our Scandinavian neighbors, and we already cannot circumvent the existing agreements.

Also important is the fact that, taking into account our attachment to double bookkeeping, the construction of a burial in Novaya Zemlya will come to an astronomical sum—keep count only in a freely convertible currency. If, of course, we create a modern engineering installation, and not establish a dump. From a sober and an unprejudiced assessment of the situation it inevitably follows:

—there are no such neighbors in our own republic and beyond its borders who would crave to give up their territory for the construction of a regional burial;

—there is no other source of financing the work (especially in the design stages) besides the share holding of the enterprises themselves—the nuclear power installations;

—the possibilities of the Kola Peninsula without damage to nature make it possible to place on its territory a full-fledged area for the burial of radioactive waste and spent equipment. A beginning must be made, and only in this way can we put an end to the practice of dropping the waste in the sea.

[Correspondent] By the way, can the situation not be cleared up. As far as I know, previously you served in the Northern Fleet and the questions of dealing with waste fell within the range of your official duties?

[Perovskiy] Regardless how amicably everybody would tackle the plans and designs beginning tomorrow, no matter what golden rain would fall on the builders and with what ashes the heads for the previous sins, we cannot cope without dumping into the sea during the next 2-3 years. And I would like to dwell on this in more detail.

I do not call into question the civic position of the USSR people's deputy, A. A. Zolotkov, and his professional knowledge. But since the imagination of readers and television viewers is stunned by the information thrown out to them, some clarifications and additions are simply necessary. Some initial propositions. As the result of the operation of the military and civilian nuclear fleets that are based in Murmansk and Arkhangelsk oblasts, up to 1,000 cubic meters of solid and 5,000 cubic meters of radioactive liquid waste, with the share of highly-active waste amounting to no more than 5-7 percent, and waste with transuranium elements being practically absent. This level has been holding for the past 20 years and has the tendency to decrease. Approximately 85 percent of the total volume of waste is formed at ship repair enterprises (if anyone wants to dispute these data or has other—let them put the cards on the table!).

The volumes are considerable, but of a smaller order than presented in a number of publications. The desire of every author to make calculations only in the system of units (tons, cubic meters, container units, as well as curies) he likes leads to still greater confusion than the attempts of economists to establish the true magnitude of the country's gold reserves. There is really nowhere to

preserve the majority of thewaste, but the assertion that is going around about the absence of established registration and the complete lack of control of its handling is completely unfounded. A group of 4-5 qualified experts needs no more than 3 months to restore the whole dynamic of the formation and movement of and spent nuclear fuel for the past 25 years. I admit that the information on 2-3 episodes may be concealed or lost, but the overall picture is quite restorable. The practice of deep-sea burial has exhausted itself, and it is worthwhile to look at world experience. But the public must keep in mind the following:

First of all, low-active waste accounted for the basic volume of our discharges, and due to natural decay they have already ceased to be such.

Secondly, the burial of reactor equipment that took place during the 1960's and 1970's went through the obligatory procedure for the prevention of radioactivity escape into the water. Thus, the submerged internal parts of the reactor from the nuclear ice-breaker "Lenin" were treated with a special preservative, encased in a concrete container, and repeatedly hermetically sealed.

Thirdly, assertions notwithstanding, during the past 10 years the Northern Fleet has not dumped a gram of fissionable or transuranium materials and it has stopped the dumping of reactor structures that have served their term.

And the last. In the same inquiry of the deputies of the oblast soviet, the representative of the Murmansk Steamship Line administration emphasized that all burials were carried out with the permission of the public health organs. We will not be cunning—the operating staffs and departments literally beat out these decisions and there is no need to jeopardize the physicians. Only with their help can an authentic picture of the burials be restored and a very detailed atlas be published.

[Correspondent] I remember, last year there was a discussion about the problem with the ship "Lepse". Not long ago, an experiment began there, some kind of super concrete is used there. Can one now talk about the solution of the problem?

[Perovskiy] In its time, the Murmansk Steamship Line management, after the proposition about their inclination to convert the "Lepse" into a sarcophagus that was stated in the pages of POLYARNAYA PRAVDA, expressed to me its mistrust, having accompanied it with a formidable secret paper addressed to the directors of our institute. But let us try to rise above prejudice and calmly investigate. Closing up cavities in ship constructions with concrete, of course, improved the radiation situation on the ship. But having somehow solved the partial and not the most important task, the management of the MMP [Murmansk Maritime Steamship Line] aggravated the general problem. There have not been and there are not any finished technologies agreed-upon with all the inspection and environmental protection organs for the removal of the "Lepse" from the Kola Bay and its burial. I suggest (and I would very much like to be wrong!) that the steamship line as usual hopes for a governmental decision and connects its hopes with Novaya Zemlya. Not going into the moral aspect of the question, it will be extremely difficult to carry out what has been planned, since an elementary replacement of concepts is happening. The fissionable materials that are on board of the "Lepse" and have not lost these qualities (almost a ton of spent uranium and plutonium) are given out to be primitive radioactive waste, which is absolutely not one and the same thing. Absent is the finding on nuclear safety of the Physico-Energetics Institute (FEI) as the country's leading expert organization, which is submitted in such cases; ignored was the negative opinion of the Scientific Research and Design Institute for Power Engineering (NIKIET); left without intention was the opinion of the Ministry of Atomic Power and Industry concerning the expediency of the examination of a number of variants, etc., etc. Unfortunately, the search only for simple solutions, the fragmentariness of approaches, and the confirmation of one's own apparent correct position by any means will not lead to anything good. And regardless of how the specialists of the Murmansk Maritime Steamship Line will resent me, their actions are reminiscent of the partisans who have settled in the forest and do not know that the war ended a long time ago.

Once again—I would very much like to be wrong in my prognosis, but the main problems of the floating equipment base [plavtekhbaza] of the "Lepse", as I see it, lie ahead, since the time for their painless and in a technical sense more competent solution has been lost.

[Correspondent] The impression is taking shape that our country does not have a clearly expressed conception of handling radioactive waste, and hence the going to extremes on the part of the practical workers, the irritation in society, and the overstatements in the press. . . .

[Perovskiy] Alas, it is almost so. At first glance, the stages of handling waste seem clearer than clear: Collection, registration, sorting, processing, packing, and burial. And as deceptively simple as in a peasant question. And as complicated since all the formally accepted learned conceptions in contact with reality are transformed into a mirage. For example, now a great many specialists see a panacea in the creation of a powerful complexes for the processing of radioactive waste, including in the Northern Fleet. A very debatable judgement!

First of all, the very term "Processing of radioactive waste" requires great caution, since there is no initial prepared raw material here and no useful product by way of output. There is only the transfer from one form (from liquid to solid, from exchange to compact, etc.), but with the obligatory final radioactive component, which only time stops.

Secondly, for the time being no technologies exist in the world for the treatment of concrete, great masses of

radioactive metals, and a great deal more, i. e., a certain spectrum of waste, mainly liquid, is subject to the so-called treatment.

Thirdly, the very process of the treatment of waste also reproduces it, and at times the initial mass does not increase very properly in relation to the final one.

For this reason, it would be more correct to speak about the forms of the preparation of waste before its burial. Personally, I see the main thing not in the creation of new capacities, but in the development of the existing ones.

In the Northern Fleet there is a white steamship with the pretty name "Amur" and with an output of the plant for the purification of radioactive water of up to 30,000 cubic meters a year (with an annual formation of liquid waste of not more than 5,000 cubic meters in the region). And by no means due to the fault of the personnel, but, exclusively because of errors of the development engineers and their complete irresponsibility, the all in all remarkable ship that is needed by the fleet cannot get out of the planning stage. And a ship which has cost it considerable sums of money in reliable old foreign exchange.

In the distant 1960's, my first step in nuclear power engineering was an appointment to the post of operating engineer of a coastal purification complex that never started to work. After 30 years, plans are under way there to demolish the old building and to build a new one for the same purposes. There can be no doubt about the outcome of what has been planned. And this given the fact that such installations are really necessary, but also necessary are new approaches to their placement and the organizational principles of work.

Why such a thing happens, where is our science, and is it capable of great break-throughs in the creation of effective technologies in the sphere of handling radioactive waste is a special discussion. But the fact that the enormous scientific megalopolises in a number of cases have completely exhausted themselves is unquestionable. At the same time, very responsible scientific-technical tasks can be solved by collectives small in number. And here you cannot do without an example. During the past few years, I had the good fortune of working taking part in the realization of several tasks of the fleet under the direction of V. K. Bulygin (sometimes our roles changed). Without high academic degrees and titles, by position a teacher of a course on radiation monitoring, a professional of the highest level, Vladimir Konstantinovich possesses the gift of creating mobile and small collectives of kindred spirits, in which creative motives stand in first place and the bureaucratic element is reduced to a minimum. For the solution one of the radioecological problems of the nuclear fuel cycle, V. K. Bulygin was awarded the title of Hero of the Soviet Union in August of last year. He will never write a dissertation, and in the place of the executives of the Murmansk Oblispolkom I would without fail invite Bulygin to participate in the competition to develop a regional plan for the handling of radioactive waste on the Kola Peninsula. If only as one of the judges. Specialist must be evaluated by specialists who have an irreproachable moral position.

Novaya Zemlya Nuclear Waste Dumps Listed

924P0071A Moscow SOBESEDNIK in Russian No 5, Jan 92 p 6

[Unattributed report: "Secret Sailing Directions, or, Second Discovery of the Archipelago"]

[Text] Since the nuclear proving ground was created on Novaya Zemlya and the first nuclear-powered ships appeared in Arctic waters with navigational charts of this region of the Arctic, the traditional names have started to disappear—Chernaya Bay, Cape Sukhoy Nos, Abrosimov Bay, and so forth. They have been replaced by faceless names like "Zone A," "Region No. 1," "Area D," "Gallery A-31"...

Without claiming completeness and academic exposition, we are risking giving the secret sailing directions for the archipelago. Perhaps it will prove useful to fishermen and mariners...

Regions in Which Solid Radioactive Waste Is Dumped

1. The Novaya Zemlya Deep: A total of 1,450 containers, a barge with a damaged nuclear reactor (170,000 curies), a lighter containing liquid radioactive waste.

2. Neupokoyev Bay: Solid radioactive waste with a total activity of 3,400 curies.

3. Tsivolki Bay: A total of 4,750 containers, the lighter N. Bauman, the central section of the icebreaker Lenin with three damaged reactors and shielding assembly.

4. Oga Bay: 850 containers.

5. Stepovoy Bay: A total of 1,850 containers and a damaged nuclear submarine—two reactors with their nuclear fuel.

6. Abrosimov Bay: A total of 550 containers and sections from four damaged nuclear submarines (a total of eight reactors of which three still contain their nuclear fuel).

7. Blagopoluchiye Bay: A total of 650 containers with radioactive waste.

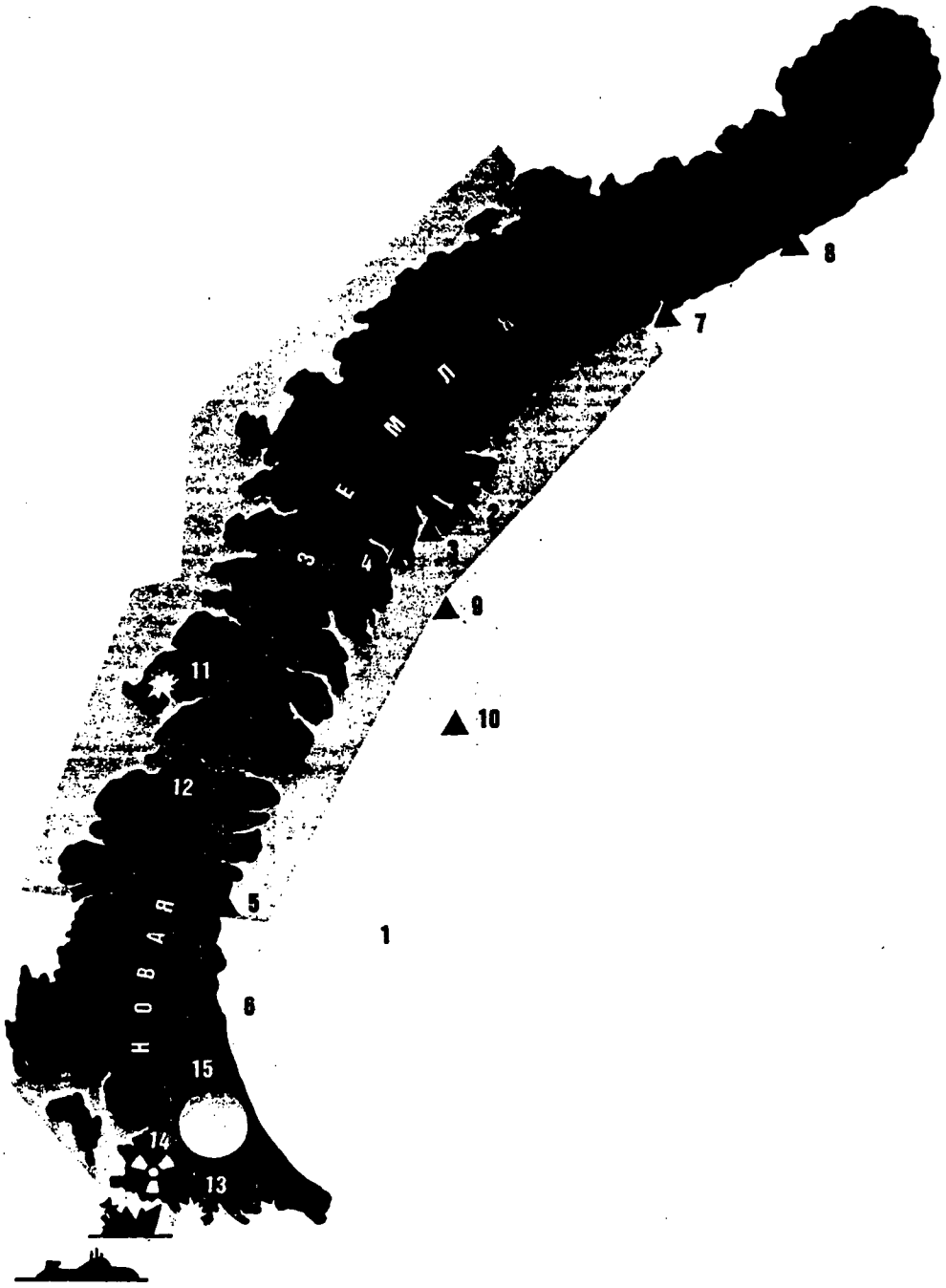
8. Techeniya Bay: A damaged reactor (without nuclear fuel). Total activity—1,856 curies.

9. A region of the open sea: 400 containers.

10. A region of the open sea: 250 containers.

Sites Where Nuclear Tests Were Conducted

11. The area of Cape Sukhoy Nos: Site of the most powerful nuclear weapons tests in the atmosphere. A restricted zone.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12. The area of Matochkin Shar Strait: Site of the last nuclear tests on Novaya Zemlya (in the galleries). A restricted zone.

13. The region of Chernaya Bay: Site of the first underwater and above-ground tests and the first underground (in bore holes) nuclear tests on Novaya Zemlya. Place where the experimental vessel Kit foundered; assumed burial site for the nuclear submarine Komsomolets (in the event she is lifted). A restricted zone.

14. Assumed region of the site for a regional radioactive waste burial site.

15. The southwest sector of the south island of the archipelago: Assumed region for the development of the long-term program of nuclear testing on Novaya Zemlya.

Novaya Zemlya Ecology Movement Seeks Support for Nuclear Test Moratorium

924P0071B Moscow SOBESEDNIK in Russian No 5, Jan 92 p 6

[Article by Aleksandr Yemelyanenkov: "To a New ZEMLYA: SOBESEDNIK's Ecological Press Marathon"]

[Text] Problems are pressing in on us from all sides. The struggle for the survival of the individual, who since the dawn of history has known no law except the "law of the jungle," when the strongest is always right, has at the end of the second millennium of the new history grown into global confrontation between man and the technology he has created, and the environment. And among the many threats in our rapidly changing world, the greatest urgency attaches to those associated with the development and improvement of nuclear weapons and the radiation and medical and biological consequences of the use of the atom for "military" and "peaceful" purposes.

During the 45 years since that day of 16 July 1945 when in the Alamogordo desert the United States tested the first atomic bomb, more than 1,830 nuclear and thermonuclear explosions have taken place in the earth's atmosphere and underground and under water. Essentially, every 10 days there has been a new explosion urging on the arms race and bringing slow death to every living thing...

The closure of the Semipalatinsk proving site and the one-year moratorium on nuclear testing unilaterally announced by the president of Russia gives the world a chance that the senseless rivalry between the nuclear powers will finally be halted and that a reverse process will start—nuclear disarmament and conversion of the test sites. It would be possible to direct their powerful scientific and technical potential and the funds that are freed up into medical and social rehabilitation of a population affected by the radiation, cleaning up territory that has been contaminated with radioactivity, and solving other urgent tasks. Strictly speaking, today this is the patriotic and professional duty of nuclear scientists and those who developed and tested nuclear weapons. And conversion does not mean a loss of their skills: the safe operation of nuclear power engineering facilities, and the total rehabilitation of stricken people and territories are not simple tasks. It is much more complicated to push the nuclear genie back into his bottle than it was to let him out.

This problem must be resolved at the interparliamentary level and at the level of the governments of the independent states of the Commonwealth, but we also want to place it under independent public control—with your help, of course, dear reader. Starting with the issue that you now hold in your hands, the SOBESEDNIK ecological press marathon "To a New ZEMLYA" is starting. It was under this symbolic motto that numerous environmental groups in the northwest oblasts of Russia joined last year in the broad popular movement known as "To a New ZEMLYA." Our common and immediate goal is to insure that the one-year moratorium announced by President Yeltsin stands, and that Russia's example will be followed by other nuclear powers.

The call—"To a new ZEMLYA"—should not be taken to mean that we intend to move to the Arctic archipelago and heroically take the boundaries of the proving ground and its secret facilities by storm from sea and air. Let any such suspicions be dissipated. We are not waging war against those who are obeying their orders and carrying out their military duty on Novaya Zemlya. On the contrary, we have an attitude of the greatest respect for their service in the extreme conditions of the Arctic, and we value everything that has been built by their intellect and by their hands. We believe that the labor of these people should also be given its proper due in the future, and that the entire social infrastructure of the archipelago should be developed on a priority and intensive basis regardless of plans for the further use of Novaya Zemlya. In exchange we want just one thing—to be correctly understood.

"To a New ZEMLYA" means a renewed planet on which it is safe to live, a new world order based on the principle of good-neighborliness and cooperation, and the exclusion of force and the military threat as an argument in politics.

The road to a new ZEMLYA is not an easy one, and along it there are more ice hummocks than there are in the Arctic. But we must go along it. We invite those who are persistent, those who are not indifferent, to come along that road. **Tel. 285-37-11.**

P.S. The headquarters of the "To a New ZEMLYA" movement can be contacted at the following address: 163061, Arkhangelsk, Prospekt P. Vinogradov, 29; telephone—9-61-34. Introductory contributions from individual or collective members of the movement, and also voluntary donations, are being accepted in account number 100609924 at the Pomorskiy Commercial Bank, Arkhangelsk city, Financial Department 103015. The

charter and program documents of the movements will be sent C.O.D. on application to the headquarters.

Northern Fleet Fuel Residues Pollute Kola Gulf

LD1502114892 Moscow Radio Rossii Network in Russian 0600 GMT 12 Feb 92

[Report by station correspondent Yuriy Arkhipov]

[Text] The Maritime Inspectorate of the Murmansk Oblast Committee for the Protection of Nature has recorded a major spillage of fuel residues into the Kola Gulf. Our correspondent Yuriy Arkhipov will tell us about it.

[Arkhipov] The scientists say that it will take several decades to save the Gulf and restore it to the level of 20 years ago. But the main thing that is needed for this is to stop the discharge of spent fuel into the Gulf from the town's enterprises and, of course, from the ships standing in port. Unfortunately, this is not happening and the latest case bears this out.

The Maritime Inspectorate of the Oblast Committee for the Protection of Nature has discovered major pollution of the southern reach of the Kola Gulf. The length of the oil slick is about 4 km, its density is six points. The maritime inspectors, who immediately went out in a launch to the region in question, had no difficulty in establishing the source of the pollution—it is the pride of the Red Banner Northern Fleet, the heavy aircraft carrying cruiser Admiral Gorshkov. It is standing at a mooring in the naval ship repair yard. They believe that it is this ship which spilt the fuel residues into the Gulf.

Recommendations were made on several occasions during a recent ecological check to the effect that the Red Banner Northern Fleet increase the number of tanks for collecting spent fuel from its ships, but the military pays no attention to ecologists' recommendations. Meanwhile, the Fleet is being served by just two tankers, while the need for such ships is 10 times greater, as was stated in the recommendations. It is natural that they are unable to take the residues away for processing, and the seamen are forced to pour the fuel residues into the Gulf.

It is very difficult for the Maritime Inspectorate to control the military. After they discovered the slick and determined the source of the pollution, they were not allowed on board the Admiral Gorshkov to carry out a preliminary investigation. The Fleet has its own maritime inspectorate, and by all accounts its specialists intend to carry out this work themselves. There can be little doubt about its results—they will satisfy the Fleet Command, and once again rivers of fuel residues from warships will flow into the Kola Gulf, proving to us the powerlessness of the ecologists and the might of the military department.

Orel Oblast Sets Up Department for Post-Chernobyl Effects

PM1902104592 Moscow IZVESTIYA in Russian 14 Feb 92 Morning Edition p 1

[Vladimir Kulagin report: "Chernobyl 'Leaves Traces' in Orel Oblast Too"]

[Text] The Orel Oblast Administration has set up a department to eliminate the consequences of the accident at the Chernobyl AES [nuclear electric power station].

According to Yuriy Yefimov, chief of the newly established department, the scale of radiation pollution in the oblast is considerably more serious than was realized in the initial period following the environmental disaster at Chernobyl. The radioactive cloud covered 22 rayons inhabited by more than 350,000 people.

Unfortunately, the real picture of the consequences of the Chernobyl AES accident for Orel Oblast was only drawn up in late 1990, when specialists from leading scientific research institutes compiled a map of the radiation situation and the polluted area. However, the oblast's financial position does not yet allow it to provide the necessary medical and material help to those in the polluted area.

The benefits available under the Russian Federation Law "On Social Protection for Citizens Affected by Radiation as a Result of the Chernobyl AES Disaster" can so far only be claimed by those who directly participated in eliminating the consequences of the accident at the AES or who were evacuated from dangerous areas.

1979 Underground Nuclear Testing in Ukraine Alleged

LD1302144192 Moscow TASS in English 1948 GMT 12 Jan 92

[By UKRINFORM-TASS correspondent Sergey Balykov]

[Text] Kiev, February 12 (TASS)—Part of the Ukrainian territory was used by the military command of the former Soviet Union as a nuclear test range. One of the nuclear explosions was carried out in 1979 in the "Yunkom" mine in the city of Yenakiyevo in the Donetsk region, Ukraine, according to a press release issued by the anti-militarist commission of the Ukrainian Ecological Association "Zeleny Svit" and the Ukrainian Peace Committee, and distributed today among Ukrainian journalists.

In the course of the news conference, members of the ecological association presented maps of ecological disaster regions where military objects were located, documentary photographs and samples of drinking water. According to a spokesman for the Goskompriroda (State Committee for Environmental Control), military objects in Ukraine occupy about one million hectares of

land, which is either poisoned now or turned into dumps for damaged military equipment and waste.

The association appealed to the Ukrainian parliament and government with a statement demanding guarantees for proper environmental protection, strict ecological control in the military sphere and investigations of all ecological crimes by the procurator's office.

Ukraine Establishes State Nuclear Safety Committee

LD1502144592 Moscow TASS in English 2017 GMT 14 Feb 92

[By UKRINFORM-TASS]

[Text] Kiev, February 14 (TASS)—The Ukrainian State Committee on Nuclear and Radiation Safety has been recently set up to provide for efficient state regulation and control over safe uses of nuclear energy and radiation technologies.

The Committee was established under a resolution of the Ukrainian Cabinet of Ministers on the basis of the State Committee for Supervision Over the Safety of Work in Nuclear Power Engineering.

It will elaborate principles, norms and rules of the use, transportation and storage of nuclear materials and radioactive substances at all enterprises and organizations. The Committee will also carry out scientific research to upgrade the safety of nuclear power engineering and radiation technologies and solve physical and technical problems of the radiological protection of the populations.

The new establishment will include the main state inspection for supervision of nuclear and radiation safety.

Ukraine To Undertake Ecological Study of Donbas

LD1102223792 Moscow TASS in English 0802 GMT 11 Feb 92

[By UKRINFORM correspondent for ITAR-TASS]

[Text] Kiev, February 11 (TASS)—The Ukrainian Ministry of Environment and the Academy of Sciences will jointly undertake a complex study of the ecological situation of Donbas. Assessing the level of pollution of the environment, the scientists will, in particular, make additional recommendations to protect subsoil waters and reestimate their reserves.

These measures have been provided for in accordance with the Ukrainian cabinet's resolution, in which special attention is paid to the worst affected zones from the ecological point of view, such as Lisichansko-Rubezhanski industrial area and the Slavyansk city of Donetsk Province. In the coming four years more purification installations, circulatory water supply, utilisation of industrial gutter and degassing systems will be reconstructed, broadened and installed. A provision for technical reequipement of the automatical control system on the Severski Donets River is also made.

Those works will be carried out on the funds of chemical establishements, and received from their exports and barter operations. Under the resolution, certain environmental protection facilities will be included in the government order while preparing programme of capital construction.

Central Asian Academic Proposes New Project for Aral, Caspian Seas

LD2102182192 Moscow TASS in English 1029 GMT 20 Feb 92

[Text] Alma-Ata, February 20 (KAZTAG-TASS)—A Central Asian academic claims to have discovered a direct link between the drying up of the Aral Sea and the increased water levels in the Caspian. Doctor Robert Kurmantaev, head of the Kazakh Institute of Hydrology maintains the sea level in the Caspian will go on rising as the Aral dries up.

Doctor Kurmantaev has revealed an interesting interdependence between the Aral and Caspian Seas which are 450-500 kilometers apart. When the Aral Sea began to dry up, the water level in the Caspian Sea began to rise considerably. Research carried out by the scientist gave him a basis to assert that the correlation between the areas of both seas' basins should be roughly the same.

The researcher thinks the main reason behind the ecological catastrophe is the disturbance in the gravitational balance across the intercontinental area of Eurasia, directly linked to the sharp fall in the volume of the Aral Sea. But at the same time due to our planet's rotation it tends to restore the balance. This caused regional changes on the land surface and in climate which are to be considered a response of the largest internal reservoir on the Earth to the progressive degradation of the Aral. Hence the necessity to prevent the Aral from drying up as soon as possible.

One of the plans worked out by Doctor Kurmantaev involves the construction of a 450 kilometer long Caspian-Aral canal to divert the Caspian's surplus water to the Aral.

However, because the Caspian Sea is lower than the Aral, the water will have to be pumped through the canal. Shifting several billions of cubic meters of water will need a lot of electricity, which can be generated by constructing a network of solar power stations. In this area the sun shines for about three hundred days a year.

Lithuania, Finland Sign Ecological Agreement

LD0902110792 Vilnius Radio Vilnius Network in Lithuanian 1400 GMT 8 Feb 92

[Text] Lithuanian Environment Department Director Evaldas Vebra has signed an agreement in Helsinki with Finnish Environment Minister Sirpa Pietikainen on cooperation in protecting the environment. The main aim of the agreement is to improve the ecology of the Baltic Sea and forestall possible ecological problems. The cooperation will include such spheres as compiling ecological maps, ecological education, and storing and recycling refuse. A Finnish-Lithuanian working group has been set up for this. It will have its first meeting in March.

Latvia's Skrunda Radar Station Political, Ecological Problems Unresolved

Fate of the Station Unclear

92P50102A Riga DIENA in Latvian 8 Jan 92 pp 1, 8

[Article by I. Tomsone: "Fate of Radar in Skrunda Is Unclear"]

[Text] Riga, 7 Jan 1992—The command of the former USSR missile forces moved the date of putting the Skrunda radar system Daryal-UM (receiver) into service from 1992 to 1996. In turn, the Environment Protection Committee [EPC] thinks that such a radar system (RS) will be of no use to Latvia. The EPC will form a commission, which will prove the dangers of the Skrunda RS to human health, domestic animals, and the surrounding forests.

Last year, a special intergovernmental—USSR and Latvia's—commission came to a conclusion after two-year work that the electromagnetic emission of the Skrunda RS transmitter Dnieper does not exceed the norms adopted in the USSR—10 microwatts/sq.cm and the deviations in the health of people living near the radar do not exceed the limits of physiological norms adopted in the USSR. Also, the radar cannot be blamed for drying out forests, since the RS affects only consumer's radio equipment.

"These conclusions were made under the pressure from militarists. Without any doubt, the radar is one of the factors adversely affecting people, animals, and forests," the medical expert of the intergovernmental commission Janis Abelitis confirmed to DIENA. Medical workers have found during studies that residents of settlements located near the radar—Rudbarzhi, Laide, and others—complain about increased fatigue, sleepiness, and headaches. Diseases of heart blood vessels and vestibular apparatus, as well as slower heart rhythm and pulse were observed. Practically, there is not a single disease which would not show an increased rate in the area subjected to electromagnetic radiation. This is also confirmed by parallel studies in areas not exposed to radiation—Renda, Varme, and Vane places. People there are healthier. Norms established in the USSR. Those who live in this area have received the maximum allowable dosages.

Today, it is impossible to tell specifically that the Skrunda RS is the main cause of diseases, since the environment is adversely affected by oil refineries in Mazeikiai, oil storage in Ventspils, and by the large number of the former USSR military units stations in Kurzeme.

"Such mathematically processed and actually reliable studies on humans have not been carried out anywhere in the world," J. Abelitis said. In turn, specialists at the EPC have already proved that the Skrunda RS is directly responsible for drying out of the forests in this area.

"Even if Latvia even will be able to prove the danger of the Skrunda RS, there are no guarantees that Russia will agree to liquidate it," the chief specialist in electromagnetic radiation of the Latvian EPC Peteris Jansons predicted. He supports his prognosis by the fact that the Russian Government itself will not allow to disassemble equipment until nuclear weapons exist in the world. P. Jansons said that the construction of the Skrunda RS is the result of the nuclear arms race and, as an example, mentioned Yorkshire, England, where a similar transmitter operates for the last 25 years (as in Skrunda). This year, it is scheduled to build a receiver there. Russia will not be able to complete its receiver for political and economic reasons.

P. Jansons told DIENA that the military want to transform the Skrunda RS into a civilian facility offering to build a radio and telephone communications and information science center there for the whole Latvia, and to organize metal cutting tools production.

Both the Latvia EPC and the Kuldiga executive committee [ispolkom] reject these offers. "It is possible that the militarists are only bragging. Specialists should decide whether they have the capabilities," P. Jansons thinks. One thing is clear, namely, that "Latvia needs the Skrunda RS as a pig needs Sunday."

Russian Solution Rejected

92P50102B Riga DIENA in Latvian 11 Feb 92 p 1

[Article by D. Medenis: "Latvia Rejects Russia's 'Strategic Interests'"]

[Text] Moscow, 10 Feb 1992—"Our position is clear—no constructive negotiations can take place without the withdrawal of military personnel from the Skrunda radar station," the secretary of the Defense and international affairs commission of the Supreme Council of the Latvian Republic Juris Dobelis told DIENA in Moscow after today's session of the Latvia's and Russia's working group, "we say it unequivocally."

At the beginning of the negotiations, both sides came to a mutual agreement that the Skrunda monster is a military facility of strategic importance. Mikhail

Stepichev, the Latvian Supreme Council's deputy, informed that the Army's representatives hinted that they would like to continue to use this facility for observation purposes. As the designers of the Skrunda radar admitted themselves, its equipment may be used for tracking both asteroids and satellites, and, for example, a missile launched from a Muslim country. A notion was introduced that using this facility, Russia could also simultaneously defend Latvia's strategic interests.

"We do not have an external enemy," J. Dobelis said, "therefore, talks about using the facility for strategic purposes are needless." It also should be taken into account that such an option could displease the neighboring countries.

Because of the concerns expressed by specialists in Latvia that the Skrunda radar negatively affects the environment and population, it was stipulated to form a group of experts to investigate the current ecological conditions in the radar's vicinity. If necessary, foreign scientists will be used for consultations, or expert opinions.

Based on the scientists' conclusions, a decision of accommodating the facility to possible civilian applications will then be made. The Latvian delegation thinks that the problem of converting the Skrunda radar to the needs of national economy should be resolved prior to the signing of the treaty on troop withdrawal between Latvia and Russia. "Observing the change in the position of the negotiations partner, we may come to the conclusion that our position, if not adopted completely, is definitely understood," J. Dobelis said.

World Bank Experts Examine Environmental Impact

OW1202214192 Moscow BALTFAX in English 1858 GMT 12 Feb 92

[Following item transmitted via KYODO]

[Text] After examining Latvia's environmental situation experts from the World Bank told the Latvian environmental committee on February 11 that areas adjacent to the Skrunda radar are one of the most health-hazardous places in Latvia.

"The impact of electromagnetic radiation on human health may be compared with that of the AIDS virus", the experts said. The radar's radiation may cause profound changes in human immune system and increase chances of developing cancer.

At an earlier meeting of Latvian and Russian working groups both sides have decided to set up a separate group to examine issues relating to the Skrunda radar.

REGIONAL AFFAIRS

European Car Manufacturers To Reduce CO_2 Emissions

92WS0269J Brussels EUROPE in English 13 Dec 91 p 15

[Article: "(EU) Environment: European Automobile Manufacturers Volunteer To Reduce CO_2 Emissions by 10% by 2005"]

[Text] Brussels, 12/12/1991 (AGENCE EUROPE)—European passenger car manufacturers grouped in ACEA, Association des Constructeurs Europeens d'Automobiles, the newly established manufactures' association, have volunteered to reduce CO_2 emissions of their cars by 10 percent within the period 1993 to 2005, thereby bringing their support the objective the EC has set itself of stabilising these emissions at their 1990 level. The ACEA recalls that total road transport's contribution to man-made CO_2 emissions is less than 14 percent worldwide and 19 percent in the EC (15 percent for passenger cars). Moreover, according to the Association, the manufacturers have managed to reduce average fuel consumption by more than 20 percent since 1978. They note that improvements can still be achieved if other methods are adopted in other fields relating to road traffic, such as: a) traffic management; b) development of alternative fuels; and c) adapting appropriate driving methods.

According to the ACEA, this commitment should be supplemented by a new, global and integrated European approach to reduce CO_2 emissions, which should be part of a balanced worldwide programme directed at sources of CO_2/greenhouse gases. If a carbon tax on energy is part of this programme, the automobile industry emphasises the need to offset this additional burden on the automobile consumer by a reduction of the heavy taxes paid when buying or using automobile products. Should such measures affect the European industry exclusively, ACEA stresses that this would create a competitive disadvantage vis-a-vis other industrial regions which are not prepared to take similar steps, notably North America and Japan.

Gulf of Finland Most Polluted of Baltic Waters

92WN0264A Helsinki HUFVUDSTADSBLADET in Swedish 29 Dec 91 p 3

[Article by Sonja Hellman: "Gulf of Finland Faring Badly; It Is Now High Time To Begin Cleaning Up Nitrogen Pollution"]

[Text] The Gulf of Finland has the dirtiest water in the Baltic Sea region.

Contaminants such as emissions of nitrogen, phosphorus, and biological oxygen consumption have led to an overfertilization of the gulf and the start of [plant] growth. In the past two years researchers have discovered new, disturbing algae growths in the Gulf of Finland.

The new algae growths are behaving differently in a way that no one can predict.

The Gulf of Finland is polluted primarily by water which comes from the land through streams and rivers and from communities, whereas the Baltic Sea is primarily polluted by fallout from the sky which comes from fossil fuels from all of Europe.

Researchers have also observed that the nitrogen is increasing more than the phosphorus and that, in terms of overfertilization, the Gulf of Finland has received the most.

When water is overfertilized oxygen is consumed, which leads to oxygen-poor seabeds. In theory the water begins to die.

Where there are new algae growths the gulf resembles a green soup. The layer is 30 centimeters thick. Researchers know that this type of algae growth will increase.

Timo Tamminen, a special researcher at the Water and Environment Administration, believes the situation in the Gulf of Finland is alarming.

"I don't really understand how anyone could say that the situation isn't disturbing and that we shouldn't take action given these sorts of circumstances," he said.

According to Timo Tamminen, it is the nitrogen which is increasing in the Gulf of Finland, the Baltic Sea, and the Gulf of Bothnia taken together. There is no comparable trend in the case of phosphorus.

Lopsided Discussion

In relative terms, there will be a dramatic increase of nitrogen in the next ten years.

"The fact that the nitrogen is increasing rapidly ought to be a sufficient argument in favor of reducing the amount of nitrogen which goes into the Gulf of Finland," Tamminen said.

He noted that the discussions now underway in the capital city region about cleaning up the nitrogen at the purification plant for waste water are noteworthy. Researchers have also noted that it will be expensive to clean up the nitrogen emissions.

Instead researchers ought to be talking about the need for a clean-up. It is expensive only because people have not gotten used to the idea that this is something they must invest in.

In Finland, phosphorus emissions, on average, are cleaned up at a rate of 91 percent and biological oxygen consumption is reduced by 90 percent while the average rate of nitrogen reduction in all of the country is 32

percent. Clean-up of emissions from Russia and the Baltic is very inadequate, and the biggest polluter of the Gulf of Finland is St. Petersburg, where the waste water of millions of people drains directly into the water untreated.

Now, inasmuch as Espoo is the first town in Finland to have been ordered by the water rights court of appeal to clean up nitrogen emissions from the water purification plant in Finno, officials there are discussing, among other things, whether the money that could be invested in the nitrogen clean-up here in Finland should be invested in St. Petersburg instead.

Naive Argument

Timo Tamminen believes this idea is reasonable up to a certain point. In social terms, however, the idea is very naive.

"It's obvious that the countries in the east need help so they can get their clean-up underway. But I don't think this is an argument in favor of our being restrained with investments on our side.

"In the event Espoo were to receive permission to stop investing 60 million markkas, then that money would not go to St. Petersburg; rather Espoo will use the money for something else, which, from an environmental point of view, could be just as harmful.

"For example, they could build new roads. Then traffic and the nitrogen oxides in the air would increase.

"Espoo really does have the best conditions under which to begin cleaning up the nitrogen. The water purification plant in Espoo is going to be remodeled and modernized. The nitrogen clean-up won't be that expensive, and besides they are rather experienced with this sort of clean-up in Espoo. At present Espoo is the best prepared of the purification plants around the Gulf of Finland. They're not leaping into the dark at all."

Timo Tamminen also believes it would have been much better for tax payers if Helsinki had advocated the construction of additional lines for the nitrogen clean-up at the Viksbacka water purification plant from the beginning. The earliest Helsinki will expand the area for cleaning up nitrogen at Viksbacka will be at the turn of the century.

"In Espoo it's not a question of such large amounts of money, since the nitrogen clean-up should cost 60 million markka. For Helsinki, on the other hand, it's a major issue. In Helsinki they're investing one billion [markka] in the Viksbacka water purification plant and they're developing a two-step clean-up process for phosphorus and biological oxygen consumption.

"I think it's a colossally wrong investment to allocate a billion to clean up just phosphorus and biological oxygen consumption but nothing at all to clean up nitrogen. From the standpoint of overfertilization, the clean-up result will only be half as effective. Given this, a nitrogen clean-up wouldn't be expensive. Why couldn't an additional half billion [markkas] help cover one additional pollutant?

"Everyone agrees that phosphorus emissions ought to be cleaned up, but when nitrogen is concerned, then you hear the most unusual arguments, for example, that the technology to clean up nitrogen isn't adequate."

"There's no technology before there's a call for it. Engineers will develop the technology only when someone puts the money on the table."

Timo Tamminen thinks this is a classic issue: a new need comes along and before it has become self-evident people come up with the most unusual arguments.

"In discussions, people have also come up with incorrect interpretations. People have believed, for instance, that those who argue in favor of cleaning up nitrogen are protesting against the clean-up of phosphorus, that cleaning up phosphorous is unnecessary or a bad investment.

"That isn't the issue. These sorts of misunderstandings arise because Finland is such a small country that there's room for just one thought at a time here. In fact we have already been cleaning up phosphorus for 20 years."

St Petersburg Pollutes

One-half of the nutrients which fertilize the water of the Gulf of Finland get there from streams and rivers. The rest gets to the Gulf of Finland from fall-out from the sky and dirty water from communities. What is industrial pollution in the streams and rivers and what is the waters' natural load and what comes from agriculture and forestry researchers have not been able to measure exactly. In any event, it is clear that agriculture is a major factor in the process.

In the Gulf of Finland as a whole it is clear that St. Petersburg and the Neva are responsible for most of the pollution. The [Finnish] capital city region and the Tallinn region are responsible for approximately the same share of pollution.

In St. Petersburg most people live along the Gulf of Finland. There are estimated to be five million but presumably there are many more.

Clean-up of the waste water which comes from St. Petersburg is inadequate. There are three purification plants, but a lot of the water is not cleaned at all. It is estimated that one-third of the waste water flows out into the gulf untreated, whereas two-thirds undergo some sort of cleaning.

Finland Finances

In Tallinn all waste water is chemically treated. Clean-up of nitrogen is downright poor whereas clean-up of phosphorus is quite good. Next year in Tallinn construction will begin on a biological water purification plant which

will clean up discharges from industry and communities. The purification plant is being financed at a price of 440 million markkas, and Finland is taking part in some of the financing.

In the St. Petersburg area Finland is helping to survey the environment and will gradually take part in the construction of the purification plant. The first goal is to clean up phosphorus emissions.

Nitrogen Clean-up at Once

With regard to environmental cooperation with Russia and the Baltic states, Timo Tamminen believes that we currently have a unique historic opportunity to have a direct effect in these countries.

"In the past Finland could seldom directly affect environmental investments in the Gulf of Finland. I think we ought to be able to draw up a unified plan so these investments don't stop in midstream, as has happened in Finland. Right from the start cleaning up nitrogen should be factored into the clean-up process."

Timo Tamminen sees the Gulf of Finland and the Baltic Sea as a textbook example of how an ecosystem gets cleaned up. The area is dependent on many different sources and many different states. In 1988 the environment ministers of the Baltic Sea countries agreed that beginning in 1995 the countries should make efforts to clean up 50 percent of their pollution.

"Another way of making progress when it comes to cleaning up pollution is to commit yourself politically to a certain level of clean-up. To be sure, researchers have criticized the 50 percent goal, saying that it's a figure taken from the air which isn't based on any scientific findings. But I think it's reasonable to set a common goal for everyone."

In Sweden the agreement has been taken seriously and the 50 percent limit has been established along the coast as well as 20 kilometers inland.

Espoo, Helsinki Want To Wait

In cities and towns, decisionmakers and civil servants have not been delighted at the notion of cleaning up nitrogen pollution in waste water. The bottom line is it costs money.

The Finno water purification plant in Espoo is the first water purification plant for waste water in the country to have been charged with reducing its nitrogen discharges by 65 percent and by an annual rate of 70 percent beginning in 1998. Espoo has appealed the decision to the supreme administrative court.

In Espoo officials want to wait until Helsinki is given the same clean-up percentage for cleaning up nitrogen, since waste water from both Helsinki and Espoo is discharged into the gulf at about the same place.

No decision has as yet been made regarding nitrogen clean-up in Helsinki. Inspections which must be done before a decision on the clean-up can be made are underway.

To reduce the nitrogen which is discharged into the gulf from the Espoo waste water treatment plant would mean an additional expense of 60 million markkas for the city. Next year the Finno purification plant will be reorganized and the plant's capacity modernized. The reorganization will cost approximately 60 million markkas.

In Helsinki they are in the middle of constructing a central purification plant at Viksbacka which, when completed in 1994, will treat the waste water of 700,000 people. The price tag on the purification plant will be 1,070 million markkas and if it had to carry out the same 65-70 percent clean-up of nitrogen as in Espoo, it would cost an additional 500 million [markkas].

The capacity to clean 65-70 percent is not present at the purification plant now being built.

According to Esko Tiainen, the head of the building division at the Helsinki water and sewage plant, Helsinki is of the same opinion as Espoo.

"We ought to consider the needs to reduce nitrogen so they can be introduced at the same time. The pipes that discharge waste water into the gulf from Espoo and Helsinki are located right near one another, and the reduction effect would be greater if the reductions occurred simultaneously," Tiainen said.

At its latest meeting the Helsinki city council approved a measure which, according to press reports, would get Helsinki going with steps aimed at reducing the nitrogen from waste water.

According to Tiainen the formulation was different: that a study should be made of how the nitrogen from waste water could be reduced.

"We'll see the exact wording when we see the motion," he said.

Pollution From Communities Around the Gulf of Finland

	Type of pollution, by percentage		
Source of pollution	Biological oxygen consumption	Nitrogen	Phosphorus
St. Petersburg	75	68	81
Estonia and Soviet Karelia	20	16	14
Finland	5	16	5

The Gulf of Finland is polluted mainly by what drains into it from streams and rivers and from communities and industry. The table showing St. Petersburg's share of the pollution is based on figures from 1988-89. These figures are the most recent available.

BELGIUM

Belgium Fails To Implement EC Environmental Regulations

92AN0051A Zellik INDUSTRIE in French Nov 91 pp 62-63, 65

[Article by A. M. Eckstein: "Green Belgium: Not For a Long Time Yet"]

[Text] The European Commission has just published a highly critical report on Belgium's lack of respect for EC environmental regulations.

Whether in the area of water quality, waste management, industrial atmospheric pollution, or the protection of nature reserves, Belgium holds the sad record of being one of the European Community's worst offenders. The reason for this is that the implementation of European directives has often been either delayed or not even incorporated into national legislation. This situation is endorsed by the institutional confusion reigning in the country.

A report by the European Commission on the member states' respect for their obligations in terms of turning Community directives and regulations into national legislation names the good and offending parties. Although the U.K. usually balks when a new piece of Community legislation is adopted, once this has been "passed" it regularly translates its terms into national law. The same nearly faultless record applies to Denmark. Belgium, however, is one of the most undisciplined of the Twelve. An annex to the report, dealing specifically with the environmental sector, emphasizes this national "character trait."

Regionalization + Environment = Confusion

The Commission says that when legislation is adopted in Belgium to make a Community directive into national law, it is generally compliant. But, the European experts stress, political and institutional changes as well as the difficulties of sharing responsibility between the resulting different levels of power often cause serious violations. This is particularly true for environmental issues. Belgium's regionalization process is seriously undermined: There are contradicting policies between north and south and policies are often nonexistent for the Brussels region. If, in certain cases, we add respect for national rules, Belgium is like a true environmental patchwork.

Not only do regional and national authorities not have the same policy or policies, but coordination and communication between them leaves a lot to be desired. The European Commission therefore recognizes that, although certain measures have indeed been taken at regional level—the Walloon and Flemish regions are practically up-to-date on at least four directives—they have in general not been notified, despite two rulings by the European Court of Justice. The national government has not even communicated these directives to them. The Court is constantly rapping the Belgian government on the knuckles: In 1990 alone, the Court reached six reasoned opinions and opened two cases..., procedures which both the regional authorities and the national government (the only "official" mediator for the EC) seem to take little notice of.

Belgium Is Too Much Polluted

The Commission report highlights Belgium's inadequacies in great detail. The Brussels region still does not comply to the terms of the directives on waste, used oils, PCB-PCT's, and titanium dioxide (all of which date from 1975, 1976, and 1978). As for noise, measures involving the implementation of directives on lawn mowers, hydraulic shovels, and cable-activated excavators have not yet been communicated, whereas in the case of water nothing has been done by the Walloon region to transpose neither the 1980 directive on the quality of ground water (despite a ruling by the European Court of Justice) nor the 1988 directive on the dumping of certain dangerous substances.

Belgium has not provided any report on the application of directives on waste.

And there are good reasons for this. There are no plans to date for the elimination of either traditional, toxic, or dangerous waste either for the Brussels or the Walloon regions, the European experts pointed out. As for the so-called "Seveso" directive, its application is "more than dubious," according to the EC report which underlines its shortcomings: nonexistent or insufficient emergency plans associated with a lack of control and coordination by the authorities.

Belgian legislation on drinking water does not comply, either. Although the Flemish and Brussels regions are now in order, the Walloon region is turning a deaf ear to this, despite the European Court of Justice call to order. However, in the case of Flanders, although Community law has been implemented, this is because of an explicit exemption specifying that the level of authorized concentrations for two pesticides can be exceeded.... Again on the subject of water, the Commission points to the lack of information provided by the Belgian government on this subject, which is incompatible with its Community obligations, despite the availability of scientific reports which refer to the bad quality of surface and ground waters and the absence of sufficient purification measures: Rivers and streams are nearly all polluted and bathing waters are of bad quality....

Polluting industrial waste and the contamination of drinking water by nitrates and lead are, according to the EC, commonplace in Belgium.

The 1984 directive on atmospheric pollution by industrial plants is not very popular in Belgium either. This is, in fact, badly implemented by the legislation organizing the administration of authorized installations. The Commission particularly underlines the absence in general of

any national or regional legislation on this issue, the absence of any obligation to take the directive's criteria into consideration when authorizations for industrial development are issued, the absence of references to the best available technologies, and, finally, the lack of obligation for the provision of the gradual adaptation of existing plants.

As for environmental protection in general, Belgium is still at the "good intentions" stage: Although certain zones have been classified as "special protection zones for the conservation of wild birds," real protection for these reserves is still largely insufficient, the Commission notes, highlighting "persistent problems" in the areas of hunting and especially netting.

The Solution

No excuse or consolation is offered. However, the Commission does admit that Belgium is not alone in its unwillingness to apply Community regulations for the protection of the environment. The Commission recognizes that instances of noncompliance of national law with Community texts are still too numerous and incorporation into national legislation within the required deadlines is rare among the 12 member states. Moreover, the application of these texts is most often entrusted to various government departments which rarely show any willingness to comply with them. The Commission also emphasizes the difficulties that it encounters in obtaining full, reliable, and regular information both on the application of Community directives and on the state of the environment. At this stage, the Commission can only remind member states of their commitments and obligations and hope that the setting up of a European Environment Agency—which has now been decided on, but which is blocked because of the row over the siting of the headquarters of the European institutions—will help solve these problems. One of the functions of the agency will be to keep a closer watch on the state of the environment. Another will be to collect, process, and distribute objective and reliable information on the state of the environment.

Another establishment: Since the environment belongs to everybody and nobody and Community efforts to ensure that EC law is respected are usually triggered by individual complaints, the respect of Community law depends on interest in environmental protection and on the motivation of people complaining, which often varies according to the degree of alarm at the local level. This is one reason for the unequal geographical distribution of the number of complaints which in turn results in the risk of a geographically unbalanced application of Community law. To settle these problems, the Commission is considering, on the one hand, to introduce a system of environmental complaints at the level of member states, thus obliging them to seek a satisfactory solution, and, on the other hand, to grant environmental protection organizations or individuals the right to litigate on environmental matters.

FRANCE

Senate Approves Bill for Research on Radioactive Waste Management

92WS0161D Paris LE MONDE in French 08 Nov 91 p 13

[Article: "Senators Vote to Leave Planet Clean"]

[Text] By a vote of 290 to 11 on Wednesday 6 November, the Senate passed the bill on radioactive waste management research, which the National Assembly had already passed by a wide majority last spring (see LE MONDE of 29 June).

Sounding very professorial, Mr. Dominique Strauss-Kahn, ministerial delegate for industry and external trade, said it over and over again: The purpose of the bill on elimination of radioactive waste is not to designate the handful of sites where such waste will be buried for some tens of thousands of years. But since ANDRA [National Agency for Radioactive Waste Management] has been engaged, under the successive governments of Jacques Chirac and Michel Rocard, in virtual trench warfare in those departments (Ain, Aisne, Deux-Sevres and Maine-et-Loire) that were selected as the leading candidates to become eventually the country's "nuclear dumping ground," Mr. Strauss-Kahn was probably wise to emphasize the point.

As the minister noted during a short senate recess, the government last spring had even deemed it useful during the National Assembly's consideration of the bill to call for help from [Ministers] Hubert Curien and Brice Lalonde, who are responsible respectively for research and environmental affairs, the better to alleviate the concerns of several Socialist deputies. Neither the parliamentarians nor the general public yet has a good understanding of why the Ministry of Industry, which manages the entire nuclear power production cycle, is also responsible for regulating the industry. The bill actually has only one purpose, that of launching a 15 year period of research on radioactive waste processing, at the conclusion of which Parliament is expected to revisit the problem.

This program, costing a total of 12 billion French francs [Fr], is supposed to cover the conversion, treatment and storage of radioactive waste in various geological strata (salt, clay, granite or schist) deep below the surface. Until a moratorium was ordered by Mr. Rocard in February 1990, it was precisely these subterranean "laboratories" that frightened the communes concerned. Mr. Henri Revol (Republican and Independent, Cote-d'Or), rapporteur of the commission on economic affairs and planning, pointed out that "the nuclear age entered our lives with Nagasaki and Hiroshima," and since then nuclear power has been a constant source of "diffuse and irrational fears," whereas no one gets upset about the number of highway deaths (more than 9,000 victims per year nationwide).

CEA To Promote, Disseminate Environment Research

92WS0256D Paris AFP SCIENCES in French 12 Dec 91 pp 32, 32

[Article: "CEA To Coordinate and Valorize Its Environmental Research"]

[Text] Paris—On the strength of the research it has been conducting in its laboratories on a somewhat wide-ranging basis to date, the CEA [Atomic Energy Commission] has decided to coordinate, develop, promote, and disseminate its capabilities and technologies for the benefit of the environment. To this end, and upon recommendation by Mr. Robert Dautray, its science director, the Agency has named Mr. Alain Chedin to head its Mission Environment, with the title of Science Adviser.

To date, the Agency has been known mainly for its research in the nuclear field. But a nuclear involvement necessarily entails research into the effects of this type of energy on the surrounding environment: Air, water, living matter, both vegetal and animal, and ecosystems.

According to Mr. Chedin, 52, "There is a formidable potential of knowledge in environmental research within the CEA, at the basic, applied, and even industrial levels," inasmuch as research has been conducted there for years, not only on the safety of nuclear installations, the potential consequences of nuclear accidents from the standpoint of radiation protection, the biological effects of radiation, and nuclear waste products, but also on changes in the atmosphere, the oceans, seismology, vulcanology, lightning, marine and fluvial environments, the transport of matter in air and in waters, etc ...

This gives some idea of the multidisciplinary nature of the Agency's research work, the number of instruments and measuring devices that have had to bedeveloped for work in extreme nuclear and temperature environments, and the knowledge that has been acquired in the geology, seismology, and geodynamics inherent in the safety of underground nuclear tests, for example, at Mururoa and Fangatofa.

It was deemed advisable for the CEA to "make known its many-faceted work in these fields" and, rather than continue its research in an isolated manner, to coordinate and develop it on the basis of cooperation not only with other French but also international organizations. "The equipment developed in connection with measurement, robotics, models, and crisis management situations, can find applications in all domains of the environment, from studies of the planet's climate to the measurement of ocean currents, and the tracking and treatment of pollution," said Mr. Chedin.

Industry can benefit from it, as can the fluvial basin agencies, and the enterprises involved in the processing of toxic wastes. The range of CEA capabilities can also facilitate, by way of the data processing equipment available to it, the modeling of the climate, of the greenhouse effect, etc... Indeed, the CEA can help in the protection of the environment in all its aspects. Actually, its relations with Mr. Brice Lalonde's Ministry, and even with the Greens and environmental circles, have greatly changed. Their mutual distrust has diminished.

Mission Environment plans to launch a three-year program of CEA activities and to organize a "two-day symposium on the CEA and the environment" in March, in order to "know the viewpoint—critical or not—of all the players in the organization." One objective behind all of this: The compiling of a "Blue Book" to be published around the end of April 1992, and the starting up of new research projects during the second half of that year, including two or three "very spectacular ones on topics in which the CEA is tops," concerning, for example, a study of the climate.

Being awaited, in this regard, is the forthcoming creation of a climate and environmental modeling laboratory under the science directorate specializing in this aspect. Using improved data processing facilities, such as, for example, "Connection Machine 5" computers, the most powerful available, this laboratory could compare the results obtained in studies of the climatic changes that have occurred over the past 160,000 years. The CEA has been conducting such studies using core samples of ice provided by the Soviets and taken at their Vostok station in Antarctica.

To no extent whatever is Mr. Alain Chedin excluding possible cooperation with other French or European research organizations. Coming as he does from the CNRS [National Scientific Research Center], where he has pursued his entire career, and having worked with the Americans and been directly involved in the CNES [National Center for Space Studies] scientific programs, he is taking part in the development of future earth observation systems via forthcoming turn-of-the-century French, European, and American satellites.

Government Adopts Comprehensive Waste Policy

92ES0481A Paris LES ECHOS in French 23 Jan 92 p 6

[Article by Philippe Escande: "15 Billion To Get Rid of the Waste Problem"]

[Text] Brice Lalonde has finally launched his comprehensive waste policy with the goal of achieving mandatory upgrading of all waste treatment. Despite the tax instituted, this ambitious text may mean higher costs for the communes.

The minister of the environment finally has an ambitious, almost revolutionary text on French waste policy. Above all, he has won his fight for a dumping fee. "Tuesday night at 2000, we were still negotiating, Brice Lalonde explained yesterday, admitting that he had once again used the threat of resignation to tip the scale. A bill will be submitted at the spring session.

The approach adopted by the government yesterday during the Council of Ministers is relatively close to his initial proposal. The only difference is that the 20-franc [Fr]-per-ton fee to be paid by landfill operators will apply only to household waste and ordinary industrial waste. Special (toxic) industrial waste, which goes to "high end," or class I dumps, will be dealt with separately.

Specifically, the government has opted for a proposal by the president and CEO of Rhone-Poulenc to the minister of industry for the creation of an Industrial Foundation financed and managed by industry. The Foundation will work to clean up problem spots, grant aid to communes that accept toxic waste treatment plants, and subsidize research programs. The government, anxious to move after long inaction, has given industry two months to implement Jean-Rene Fourtou's proposals and sign a multiyear agreement with the state.

While obtaining the fee is a spectacular victory for Brice Lalonde, the budget earmarked—around Fr350 million a year, to be administered by the Environment and Energy Economies Agency—remains modest in relation to the government's ambitions. "I want to act in such a way that 10 years from now not a single French citizen will still have to endure the environmental nuisances that our current methods of waste management create," Edith Cresson said yesterday.

6,700 Landfills Eliminated

"In 10 years, the approximately 6,700 landfills that accept undifferentiated wastes will have been eliminated. By then, all wastes will be treated, eliminated, upgraded or recycled."

The project is revolutionary. "The government has created a lot more breathing room," said Philippe Brongniart, president and CEO of Sita, one of France's two big waste treatment operators. "A political decision of this scope was necessary to remedy the current situation, in which it is practically impossible to open a new waste treatment facility or landfill in France today."

To achieve its objectives, the state plans gradually to set up 160 intercommunal treatment facilities. Only the residues of this treatment (what has not be recycled or upgraded) will be stored in specialized centers. Currently, of the 20.5 million metric tons of household garbage, almost half ends up in landfills, as does three-quarters of the 32 million metric tons of ordinary (non-toxic) industrial waste.

Brice Lalonde puts the cost of implementing the entire policy at Fr15 billion over 10 years. Revenue from the fee will, of course, be insufficient. This is why the government is counting on initiatives like the one it recently launched in the area of packaging (over 30 percent of household garbage). Under that policy, it has just given the president and CEO of Saint-Gobain, Jean-Louis Beffa, the go-ahead for the firm he proposes establishing, Ecoemballage [Ecopackaging].

15 Billion Over 10 Years

Beginning 1 January 1993, producers and importers of consumer products will be required either to take the packaging back—by requiring a deposit, for example—or to contract with a concern like the one proposed by Saint-Gobain's CEO that will work with the communes to recover and recycle what is thrown away.

Funding will be provided by charging manufacturers around 3 centimes per package. Brice Lalonde's ambition is to institute identical systems for batteries, paper, drugs, etc. However, comparing these sums with those brought to bear in Germany—three times as much on average—indicates that the communes will have to reach into their own pockets. Given their current particularly dismal financial situation, they will be going to the taxpayers yet again.

Cost of Different Treatments

	Observed Costs (Fr/Metric Ton)		
Treatment Methods	**Minimum**	**Maximum**	**Average**
Simple incineration	80	270	170
Incineration with energy recovery	96	253	165
Slow composting	100	175	132
Accelerated composting	110	260	176
Crushing and disposal in landfills	66	196	116
Controlled dumping	35	100	63
Controlled compacted dumping	35	100	63

Source: ANRED

Recycling Industry in France

Year	Number of Firms	Salaried Employees	Sales	Investment	Exports
			(Million Fr)	(Million Fr)	(Million Fr)
1988	4,820	18,876	23,605	936	4,931
1987	4,505	16,701	16,105	521	3,035
1986	5,600	19,047	19,725	897	4,484
1985	5,911	21,139	25,527	1,024	6,179
1984	5,256	19,069	23,430	902	6,091

Composition of Household Trash in 1990

Packaging	
Glass	12 percent
Plastics	10 percent
Metals	6 percent
Cardboard/paper packaging	5.5 percent
Other	
Fermentables	25 percent
Other paper	24.5 percent
Fines	10 percent
Miscellaneous	5 percent
Textiles	2 percent

GERMANY

Solar/Hydrogen Energy Project in Bavaria

92WS0221A Duesseldorf HANDELSBLATT in German 4 Dec 91 p 33

[Article by Bernd Genath under the rubric "Renewable Energy": "Hydrogen: Nitrogen Oxide Problems Remain for the Present; Pilot Project in Neunburg: System Optimization Moving Along"]

[Text] 3 Dec 91 (HANDELSBLATT-TL)—The first plant in the world in which all the system elements of a future solar/hydrogen economy are being tried out in their interaction on a practice-oriented scale is in Neunburg in Bavaria. The project of Bayernwerk and its German industrial partners is now entering the optimization phase for its system components.

Theoretically the solar energy radiated onto the earth in a half an hour could cover the world's annual primary energy requirement. Unfortunately, the low energy density and the strongly fluctuating supply between day and night, between winter and summer and between northern and southern latitudes do not meet today's key requirements for a rewarding solar harvest. Nevertheless, power economics and research are including the direct utilization of solar energy in their alternative plans. The solar/hydrogen project in Neunburg outside the forest in Bavaria has now after the conclusion of phase one traced out the next steps in the research.

The operator of the plant is Solar-Wasserstoff-Bayern GmbH [Solar/Hydrogen-Bavaria Limited-Liability Company], a joint venture of the Bayernwerk company (60 percent share) and BMW, Linde, MBB and Siemens, each with a 10 percent share. The company was founded in 1986 expressly for this purpose. The total cost of the first phase of the project, which ended this month, runs to about 65 million German marks [DM]. The Federal Research Ministry and the Free State of Bavaria are sponsoring the grants portion of the work together with 50 percent. The symbiosis of the sun and hydrogen bridges the gap between "random" solar heating and controlled terrestrial exploitation. This bridge is supported by quite a few piers:

1. Primary energy (the sun).
2. Current (photovoltaic).
3. Hydrogen (electrolysis).
4. Heat (combustion process).
5. Current (fuel cell).

This chain makes it clear that hydrogen is nothing other than derived energy and therefore basically can take the place of no primary fuels.

Another shortcoming: The combustion process with oxygen develops hard-to-control temperatures of a few thousand degrees. This temperature level can be lowered with air instead of oxygen as the second fuel parameter. But air consists of up to about 70 percent nitrogen. The result would be intensification of the nitrogen oxide problem, because a hydrogen and air mixture develops still higher temperatures than the customary fuels.

However, in spite of all the obstacles and efficiency loss that occur in each stage of the chain, the fascination of this process lies in the ideal picture of a future power supply: a power system based on solar heat and hydrogen that consumes no raw materials in operation and produces practically no pollutants and no CO_2:

The solar/hydrogen cycle stores photovoltaically generated current in hydrogen, as water is separated electrolytically into its components oxygen and hydrogen. The fuel hydrogen in turn combusts with oxygen to water, which closes the cycle—more correctly, the terrestrial cycle is closed, because the sun does not regenerate in this process.

Ludwig Bolkow as Initiator

The founder of the MBB concern, Dr. Ludwig Bolkow, proposed the plant in Neunburg outside the forest. He called the partner Bayernwerk and the Power Plant Union to a table for the first time in 1986 and discussed the project with them. The cornerstone ceremony followed in 1988, and current flowed from the photovoltaic plant into the electric mains for the first time as early as 1990. The first plant in the world in which all the system elements of a future hydrogen economy are being tried out in their interaction on a practice-oriented scale is in Neunburg.

The equipment is made up of the following components: two photovoltaic units having a total power of around 280 kW, two water electrolyzers having around 210 kW of total electric power, remote units for gas treatment, compression and storage, two fuel cells, two gas heating boilers for heating, and a liquid hydrogen filling station for experimental power-propelled vehicles. The fuel cells have a battery character, as they recombine the hydrogen and oxygen in a kind of reverse electrolysis and in so doing liberate again the electrical decomposition energy input earlier into the electrolyzer. The photovoltaic plant, occupying just under 3000 square meters, has operated without problems up to now. The various external influences on the unit have been found to be noncritical. For instance, it survived unharmed even the severe storm in the spring of 1990 with top wind speeds of up to 160 km/h.

Both electrolyzers, which draw their current from an expensive and very flexible electric power processor, went into operation for the first time in April 1990. Both units are dependent on a supply of high-purity demineralized water. Both release practically unpressurized the gas produced. Their characteristic feature is their high efficiency of over 80 percent under their rated full load. By comparison conventional units operate with efficiencies of only around 60 to 65 percent.

The gases produced—hydrogen and oxygen—flow into pressure tanks, the storage of hydrogen being designed for a capacity of 5000 Nm3. Two tanks having a capacity of 80 m^3 each are sufficient because of the 30-bar compression. The oxygen, on the other hand, is stored only for particular experiments.

Cost Reduction Expected With Solar Cells

Two prototypes of gas heating boilers having a thermal power of 20 kW each are utilizable. The first prototype burns in the mixing mode hydrogen/natural gas with pure oxygen, and the second prototype the same mixture with air.

The first phase concerned itself mainly with tying the individual system elements into the process. Optimization of these components is reserved for phase two. It will run to 1996 with an estimated cost frame of around DM80 million. Some changes are planned:

In the area of the photovoltaics, doubling of the solar cell unit is being contemplated. In this connection the plan is to use "third-generation" solar cells, i.e., mainly amorphous-silicon semiconductors. A significant cost reduction is expected in the longer term from this technology. Of course, engineers also still disagree about the quality and efficiency of individual photovoltaic materials.

Moreover, Neunburg must settle the matter of which technology and which fabrication process are the right ones—whether the single-crystal, or polycrystal, or thin-film technology on an amorphous base, or even the new CIS technology. Bayernwerk is optimistic that thin-film engineering is the right way to go. However, the efficiency loss associated with this technology, that CIS cells clearly avoid, still causes concern.

The installation of a newly developed pressure electrolysis system will in addition permit hydrogen production under elevated pressure. New types of diaphragms in the electrolyzers as partitions between the substances obtained promise over and above this high efficiency going in the direction of 90 percent, because they prevent in addition the consequences of a gas exchange.

Wind Energy Projects in Northern Germany

92WS0221B Duesseldorf HANDELSBLATT in German 4 Dec 91 p 33

[Article by Lutz Bloos under the rubric "Wind Energy": "Decentralized Generation of Electricity Requiring Enlargement of Power System; Wind Energy Converters With Vertical Rotors Provide Many Benefits; Bird Protection Protest; Tapping Electric Current From the Cool Wind on the Coast"]

[Text] 3 Dec 91 (HANDELSBLATT-TL)—The generation of electricity from wind has made strong advances in the last two years. The capacity installed in Schleswig-Holstein and connected to the power system has increased tenfold during this period. The federal government's 250-MW promotion program provided the final impetus for this development. After this the share will come at first to one percent of electricity consumption in the windiest federal land.

The dramatic warming of the earth by greenhouse gases, especially CO_2, predicted for the coming decades is the reason for the increasing worldwide efforts to produce energy from renewable sources. That is why the federal government wants to reduce CO_2 emissions by about 25 percent by the year 2005. The federal government's promotion program also has to be put in this context, which for one thing is to accelerate the progress of electricity generation by means of wind power, and for another is to help German firms to acquire the appropriate know-how, so that they can build up production capacities for export also.

Schleswig-Holstein's energy minister, Gunther Jansen, placed strong emphasis on wind power one day after the end of the Husum Wind Power Days at the end of

September: He put into operation on the North Frisian coast Germany's largest wind park with a total of 50 converters. However, now that the commercial exploitation of wind power appears to be getting under way, obstacles and bottlenecks are beginning to show that thus far were not foreseen and also were not expected from these corners. For instance, bird protectors fear harm to protected coastal birds, and their being driven away from traditional breeding grounds if wind parks are constructed in the vicinity.

A technical restriction on the exploitation of wind power came up for discussion during the congress: the limited capacity of the available power system. Whereas till now the electricity suppliers generated electricity centrally and distributed it up to the last farmstead, they have to collect increasingly non-centrally generated electricity and feed it into the power system. However, the available power system is only partly suited for this, because many small consumers and prospective wind-power electricity generators, like individual farmsteads, lie at end points of the power system that have just a low capacity.

The capacity at the supply terminals into the power system accordingly sets a limit for the size of a wind park or the number of them. A lot of wind stations can be developed optimally only when the power system has been appropriately strengthened, as Wolfgang Weidemann of the Schleswig electricity supplier explained. For instance, only two wind parks, each having 10 300-kW wind converters, can be constructed at a favorable wind location on the west coast of Schleswig-Holstein, though the municipalities having jurisdiction have okayed locations for 10 wind parks. Hundreds of installations could generate electricity economically without state support at Rugen, an ideal location for wind power stations, if the power system were equipped appropriately. However, there are other concerns at present in Mecklenburg.

Petra Mann of the Julich Research Center, which collected the applications, assessed them and decided on support, explained the status of the 250-MW program. For instance, 2634 applications for the construction of 4758 wind power units having a total power of 611 MW had arrived in the middle of September. However, of these, 588 applications for 1016 units having a total power of 117 MW were rejected for various reasons already at this time. Two hundred and forty units supported by funds from this program and having an installed power of 26 MW were in production. The average size of the units applied for has grown from 80 to 130 kW since the start of the program and is still growing.

A manufacturer from the wind-poor interior with a totally new conception has just trodden new technical ground in the generation of electricity by means of wind power. The Heidelberg Motor firm from Starnberg introduced a vertical-axis rotor that could change wind power engineering radically.

The newly developed wind converter operates with a vertical-axis rotor. The rotor blades are positioned vertically and generate electricity without a gear unit in a traveling-field generator at the masthead. Only the H rotor and the generator's permanent magnet are moved mechanically. A gearbox, rotor blade adjustment and wind following, and costly and essentially wear- and trouble-prone parts of conventional wind converters are not required. A 300-kW unit has been generating electricity since the middle of September 1991 at the testing field in Kaiser-Wilhelm-Koog [Kaiser Wilhelm Polder] in North Friesland.

A 20-kW unit with an H rotor has passed its hardening test since January 1991, but for supplying the German antarctic station. "The misgivings we had have not materialized," explains Dr. Bernhard Richter, wind power department head of German Lloyd and at the same time chief executive of Windtest Kaiser-Wilhelm-Koog GmbH [Limited-Liability Company]. "We were afraid that condensation water would perhaps collect in the generator opening and bring the electricity generator to a standstill," he continued, "but there were no problems under any weather conditions." A 20-kW rotor is supplying the Alpine Mountaineering Club's Rotwandhaus [Red-Walled House] in the Alps with electric power under likewise extreme conditions.

A commercial-size three-blade rotor having a rated power of 300 kW has a diameter of 31 meters and a hub height of 31 meters and has a disk area of 755 m^2. The described area of the disk is the critical parameter for the unit's power. Typical survival wind speeds are between 50 and 55 m/s, which are reached only in exceptional cases on the German coast even in Spitzenboen. The 280-kWh rotor in the testing field has two rotor blades, each 21 meters long, and a rotor diameter of 32 meters. This results in a rectangular surface of 672 m^2. The survival wind speed is specified as 71 m/s.

Measurement results for the electricity harvest as compared with conventional plants are not yet available, because unplanned outage times over a longer period also have to be taken into account. However, lower construction and maintenance costs for the technically brilliant simple converter represent an important advantage over conventional systems. In addition, the blade speeds are lower, so that noise generation is lower. H rotors will be installed on tripod masts in the future.

In spite of the advances that the exploitation of wind power has made in past years, Uwe Carstensen, chairman of the congress organizer, the German Society for Wind Power, is rather skeptical. Its call to get from the wind and sun in 15 years 10 percent of the total consumption of power appears unrealistic to many. What is more, it is to be 25 percent in 35 years and 75 percent in the year 2050. Besides, our economy's total power consumption would have to be halved by the year

2025 in order to reduce effectively anthropogenic influences on the climate. Carstensen is relying on the recommendations of the German Federal Diet's study committee and thinks it is possible to implement a proper program with an effort of less than one percent of the gross national product.

However, a look across the border northward shows the following: The Danes are again several steps ahead of the Germans when it comes to exploitation of the wind. The first offshore wind park with 11 commercial-size converters with a rated power of 450 kW each has been producing since August 9. The park was built by the power supplier Elkraft. Ten percent of the total cost of 21 million German marks [DM] comes from EC funds for the promotion of renewable energy. The water depth on the north coast of Lolland comes to only 2.5 to 5 meters. Still the foundations, with a total weight of 1100 tons each, had to be designed to be quite massive. The expected yield of electricity is 12.5 million kWh/year, which satisfies the demand of roughly 3500 households. The operator expects an approximately 30 percent higher yield of electricity at this location than at onshore locations.

Experts Question Safety of German Plutonium Processing

AU1102183392 Hamburg DER SPIEGEL in German 10 Feb 92 pp 43-45

[Unattributed report: "Thoughtless Game"]

[Text] Claus Berke, president of the German Nuclear Forum, has good advice for the military in the former Soviet Union. If they do not know what to do with their superfluous warheads they should not hesitate to ask the Germans.

At a recent meeting of his organization in Bonn, the nuclear power lobbyist boasted that "we Germans" can refer to "20 years of experience." This is how long his colleagues, the nuclear experts, have been dealing with the elimination of the nuclear substance plutonium.

It is true: In the nuclear plants at Hanau, engineers have further processed the extremely hazardous substance on an industrial basis. There they further process plutonium to the so-called mixed oxide fuel elements (MOX), which are used as fuel in nuclear plants.

However, West German nuclear experts have been highly irritated by Berke's offer "to solve the plutonium problem." Even Berke's colleagues recently warned that the praised treatment of plutonium in Germany bears safety risks that have so far been ignored.

Lothar Hahn, a nuclear expert at the Darmstadt Ecology Institute, has stated that the use of MOX elements in nuclear power plants, which has generally been considered harmless and has been practiced for years, is "a thoughtless game with reactor safety." This criticism has now been substantiated by the experts of the otherwise rather nuclear-friendly Cologne-based "Society for Reactor Safety" [Gesellschaft fuer Reaktorsicherheit, GRS].

According to a study carried out by GRS expert Wolfgang Thomas, under unfavorable conditions the fuel rods that contain plutonium may impede the functioning of the reactor control and the emergency system. In the worst case, the sensitive rods may even burst.

The GRS experts do not only question the processing of plutonium in Hanau, which is currently a matter of controversy between Joschka Fischer (of the Greens), the environment minister of Hesse, and his colleague of Bonn, Klaus Toepfer (of the Christian Democratic Union). The availability of MOX elements is indispensable for the nuclear energy strategy of West German electricity suppliers.

At the moment, 10 nuclear power plants in the FRG burn the rods containing the plutonium-uranium mix. The MOX fuel for the Biblis- type reactors (pressurized water reactors) consists of about 97 percent uranium oxide and 3 percent plutonium oxide. More than 50,000 such fuel elements have been produced so far by the Siemens fuel rod plant in Hanau.

Since the highly-radioactive plutonium is a waste product from reactors operation with conventional uranium fuel substances, the German nuclear industry developed the reactor recycling method in order, as it says, to "get rid" of the bomb material "without doing any damage." The 21 West German nuclear power plants transform an average five tonnes of uranium fuel to plutonium each year.

In a complex chemical process, the radioactive poisonous substance is separated from the used German uranium fuel elements in the French and British reprocessing plants of La Hague and Sellafield, and sent back. The nuclear reactors, which originally produced plutonium from uranium, now must burn the residues that are packed in MOX elements.

Nuclear critics have long since regarded the procedure, incorrectly praised as "fuel cycle," as dangerous madness

Ecological expert Hahn estimates that MOX fuel elements, because of reprocessing costs, plutonium transport, and processing are about 12 times as expensive as conventional fuel rods on the basis of uranium. This means that the uranium-plutonium rods are worth each of their single kilogram of weight in gold.

The "enormous amounts" of plutonium dioxide, which are processed by the nuclear industry in countries like the Federal Republic, provoke a "virtually nightmarish arms risk," as U.S. energy expert Harold Feiveson of Princeton University has warned. Still in this decade, Feiveson said, civilian nuclear industry will have more plutonium than the amount contained in all nuclear

arms of the world: Feiveson added that plutonium dioxide can "immediately be used as material for bombs."

Claiming that plutonium is to be destroyed in reactors is mere propaganda. Only some 40 percent of fissile plutonium contained in MOX fuel elements is used in reactors: In this process, the burned plutonium is transformed into other radioactive poisonous substances, which are hardly less problematic for the environment.

Thomas said that reactors cannot cope with the "problem of the disposal of plutonium." The "final disposal of plutonium" can be managed only in "the form of direct final storage" of fuel rods.

According to the GRS study, MOX technology is not only nonsense but even careless. The Thomas report proves that the West German nuclear industry has been handling the dangerous fuel rods for more than 10 years without ever having carefully examined the risks to reactors and the environment.

Since radiation of the plutonium fuel rods is much more aggressive in the reactor ("spectrum induration") and since fuel rods remain longer in the reactor ("higher burn-up") than uranium elements, the wear and tear of the nuclear fuels and fuel elements material" increases (Thomas)—with dangerous consequences:

—"Outside corrosion" of the metal jacket tubes of the fuel elements increases; it means that the protective tubes, which are approximately as thick as a human thumb and are designed to hermetically screen off the fuel from the cooling water, rot faster than those used for conventional uranium elements.

—The "mounting internal pressure" in the MOX elements is so strong that under certain conditions there is the threat of a "release of cracked gas"; the jacket tubes might burst under the pressure of the gas, and their highly radioactive contents may pollute the cooling water.

—The MOX fuel elements impede the efficiency of the control rods for the nuclear fire in the reactor; in an emergency this may threaten "the safe switch-off of the reactor."

— "In the event of defects or incidents" the increased heat ("post-integration energy") of the plutonium-containing fuel rods reduces the time of the reactor crew by decisive seconds to take "steps to limit the danger of an incident."

— If parts of the nuclear inventory of a reactor equipped with MOX elements melt, there is the danger of the greatest conceivable incident, even after a successful emergency cooling—a scenario for a disaster that has not yet been examined in the analysis of nuclear melt-downs.

Even the question how the MOX rods can be safely transported and stored once they have been used in the reactor creates major problems to the nuclear lobby. Because of "pervasive neutron radiation" (Thomas) is has so far not been possible to develop a sufficiently safe transport container.

Minister Urges More Support for EC Research Programs

AU1202164392 Duesseldorf HANDELSBLATT in German 12 Feb 92 p 1

["REI" report: "Riesenhuber Wants Stronger Concentration of Climatic Research Within the EC"]

[Text] Bonn, 11 February 1992—Federal Research Minister Heinz Riesenhuber wants to make European research policy more efficient and provide more money to EC research programs. According to the Christian Democratic Union [CDU] official, 10 billion ecus—some DM20 billion—should be earmarked for the fourth EC framework program for joint research policy. The program is due to start in 1994 and will have a duration of five years.

In a memorandum on European research policy, Riesenhuber advocates a stronger concentration of programs than in the past. For example, he wants to have a single EC climatic research program. Small and medium-sized enterprises should be given better access to European subsidies. Precedence should be given to the so-called pre-competitive, user-guided research, for example for the development of joint standards. Riesenhuber does not consider the support of basic research to be a task of the EC. In the long run, he wants to designate 6 percent of the EC budget for research projects. Currently, the share is between 3 and 5 percent.

In his memorandum, Riesenhuber suggests a redistribution of means. The share for climatic, environmental, and sea research should increase from currently 9 to 14 percent, that for nuclear safety from 3.5 to 6 percent. The means for renewable energy sources should also be increased. Their share should go up from 2.8 to 5 percent.

Information and telecommunication, material technology, biotechnology, and renewable raw materials will remain key fields of research. These areas should receive 60 percent of all funds. Riesenhuber wants to reduce the share for information and technology from currently 40 percent to 34 percent, while funds for biotechnology should be increased. That way, he wants to ensure that the EC will concentrate on the agreed objectives of research policy, namely to enhance the competitive strength and preserve the community's basis of life. The CDU official rejects the promotion of certain industries. Supporting so-called purposeful projects impairs the industry's competitive strength.

According to Riesenhuber, the Federal Republic contributes about one-fourth of all funds spent on European research policy. About the same percentage of these

means flow back, which in the second framework program amounted to about DM200 to 300 million, and DM400 to 500 million in the current year. In the future, Riesenhuber expects these means from the purse of the community to increase to at least DM700 million.

Moreover, the Federal Government will advocate the decentralization of European research policy. The member states should name specialists who inform particularly small and medium- sized enterprises about subsidies for research in the individual language of the country. Thus, the German research community could deal with applications from German enterprises, Riesenhuber stated.

In principal, the countries of the former East bloc have access to the EC programs. This is why the Federal Republic is against drawing up special programs for the EC's neighboring states. According to Riesenhuber, what these countries need most is an efficient infrastructure for research and development. The Federal Government and the EC have a special relief program for the development of that infrastructure.

ITALY

Chemical Companies Introducing Cleaner Products, Processes

92WN0278A Milan EUROPEO in Italian 31 Jan 92 pp 78-79

[Article by Fabrizio Filosa: "Enough Pollution; Now Industry Is Concerned About the Environment"]

[Text] Will things go right this time? After having been insensitive for many years to protests by ecologists, scientists, and citizens' committees who accused it of ruining their health and polluting the environment, the chemical industry finally seems to have undertaken a pro-environment turn. Engineer Paolo Giuiuzza, technical-scientific director of Federchimica (National Chemical Industry Federation) said, "We are working very seriously to develop clean products and processes that will not harm man and nature. It is a different reasoning, a new philosophy that is beginning to yield excellent technical results."

Today chemical plants are urged to accelerate research following certain broad guidelines: substantial changes in plant structure with the adoption of simpler, more efficient systems and procedures that produce less waste and which, among other things, guarantee higher levels of safety; replacements for many polluting substances in some phases of production; greater efforts to recycle waste materials, etc.

Considerable effort is made to develop substitute products. Some examples: water- rather than solvent-based inks and paints; biodegradable plastics; "green" gasoline with additives such as MTBE, or ethanol rather than the harmful tetraethyl lead; detergents containing materials of natural origin; and in agriculture, new phytochemicals that are effective at lower doses and that degrade after a certain period of contact with earth.

On paper it looks like an ecologist's dream. "However it may be, it is a good sign that finally the chemical industry is getting busy," comments Umberto Bianchi, professor of Industrial Chemistry at the University of Genoa and member of the Environmental League's Scientific Committee.

Certainly, a shaking-up was needed. The harm done by the chemical industry has been proven for some time. So much so that according to the data in a study by IRSA (Water Research Institute), cited in the voluminous report, "Italian Environment in 1991," written the Environmental League, "The industrial sectors causing the most pollution are the chemical industry, the basic food industry and the paper industry."

Giuiuzza admits: "Today clean production is considered the only intelligent way to go, especially for economic reasons. It pays to spend something more in the planning phase of rethinking products and processes, rather than worrying at the end about dispersing quantities of waste or paying shocking amounts to repair the damage."

This new production philosophy is expressed in a very recent publication by Federchimica titled, "Clean Processes and Products: Development Situation and Strategy in the Chemical Industry." The publication not only outlines trends, but gives several examples of cases in Italy where manufacturing and products are "eco-compatible."

An important result is a biodegradable plastic based on natural materials, mainly corn amides, (the so-called "thermoplastic amides" developed by the Ferruzzi Group) and marketed under the name of Mater-Bi. Sixty to 75 percent of the new material is made up of natural elements and is obtained through clean technology. It has mechanical properties comparable to those of polyethylene and is recyclable. Its commercial exploitation has barely begun but it is already used for packaging, in the medical field, and in agriculture for protective tarpaulins used in farming.

Umberto Bianchi says, "The only unknown is the time Mater-Bi needs to degrade. But in effect it is unimportant whether it takes two months or two years, considering that normal plastic is practically eternal. The other important aspect is that corn, a renewable resource, is used for Mater-Bi and not a fossil nonrenewable resource like petroleum.

Other very interesting products are synthetic fibers which can replace asbestos, a fiber-mineral that has been proven cancerogenic. A total of 100,000 tons of asbestos is used in Italy each year. The manufacture of asbestos cement (mostly in slabs) for the construction industry absorbs 80 percent of that total. In these manufactured products, the cancerogenic material can now be replaced by a special polyproplyene-based grid (Retiflex) which

serves as reinforcement and gives the product better characteristics than found in traditional asbestos-cement slabs. Asbestos used in making automobile brake linings also can be replaced by a high resistance fiber (Ricem) with a polyacrilonitrile base.

Great efforts were made, not only in Italy but throughout the world, to find cheap, efficient gases that could replace CFC, the notorious chlorofluorocarbon, the gas that is coresponsible for the greenhouse effect and the widening hole in the ozone layer above the Antarctic. The 1987 Montreal Protocol, signed by industrialized nations, called for the total elimination of CFC by the end of the century (except in developing nations).

CFC is used as a propellant in spray cans, refrigerators and airconditioners, for the manufacture of certain plastics, etc. Its substitution is now difficult. Among the solutions proposed are the hydroalkans that are believed to degrade quickly in the atmosphere. But tests are only now being done. Furthermore, unfortunately, the hydroalkans cannot replace CFC in every area of its use.

Paolo Giuiuzza explains, "Several examples of clean processes already have been achieved. I would like to refer to the new titanium dioxide (white color pigment) production plant that began operations a year ago at Scarlino, near Grosseto. The traditional procedure created very high quantities of liquid and solid acid waste, the famous 'red mud' (ferrous sulfate) which at one time was dumped into the ocean. Eighteen tons of waste resulted from the production of one ton of titanium dioxide.

"Now we have reduced that waste to three tons with the total elimination of red mud. With the new system, the acid waste mixes with limestone and lime, which are basic elements. This way wastes are no longer toxic. On one hand, this procedure yields chalk, recyclable for use in construction, and on the other hand, a large quantity of carbon anhydride which is salvaged."

NETHERLANDS

CO_2 Storage in Empty Gas Fields Studied

92AN0088A Rijswijk POLYTECHNISCH WEEKBLAD in Dutch 7 Nov 91 p 1

[Article by Bart Stam: "Storage of Carbon Dioxide in Gas Fields Very Promising"]

[Text] The storage of carbon dioxide in exhausted natural gas fields is an interesting alternative in the battle against the greenhouse effect, argues K. Blok, who will obtain his doctor's degree at the State University of Utrecht on 11 November. His thesis "On the Reduction of Carbon Dioxide Emissions" deals with the removal of carbon dioxide and various forms of energy saving.

With the support of the Natural Sciences and Society Research Group of the State University of Utrecht, Blok developed a process which allows the separation and eventually storage of carbon dioxide (CO_2) after the gasification of coal. He suggests storing CO_2 in "empty" gas fields through pipelines. The process produces a gas which is rich in hydrogen and has a purity of 87.5 percent. According to Blok, this gas is perfectly suitable, after treatment, for the production of electricity, for fuel cells or—although that is still in the future—for car fuels. On paper, the prospects for Blok's method look very bright. In his dissertation, he indicates that as much as 5.7 billion [metric] tons of carbon dioxide a year can be stored in exhausted gas fields worldwide. "This would be enough to store all CO_2 emissions from coal heating for a period of 40 to 50 years," says the doctoral student. Coal is the most suitable of all fossil fuels. "By nature, it is a polluting fuel, which is transformed into a clean fuel. For natural gas, the whole process is assumed to be three to four times as expensive."

Chemical Reaction

During the gasification of coal, a gaseous product is formed which consists of 93.9 percent carbon monoxide (63.5 percent) and hydrogen. With steam as a catalyst, a chemical reaction brings about the transformation into a mixture of mainly (92.8 percent) CO_2 and hydrogen (H_2). The celexol liquid binds the CO_2 and then a high-pressure expansion process causes the CO_2 and the hydrogen-rich gas to be separated. Once the carbon dioxide has been separated, pipelines convey it to the available reservoirs. In the Netherlands, these are located some 3 km underneath the surface level. Because CO_2 has a higher density than natural gas, the storage capacity of carbon dioxide is higher, says Blok. As a result, it will probably be possible to extract more natural gas if CO_2 is injected into a field which is half empty. The heavier carbon dioxide will, as it were, "push" the natural gas out.

Higher Costs

In his thesis, Blok calculated that a KV-Steg unit combined with CO_2 removal has an efficiency of 38 percent. A "normal" KV-Steg unit, in which coal gasification and power production are integrated, reaches an efficiency of about 44 percent. If the process is used for producing electricity, the production costs are increased by approximately one-third. But the great advantage is that considerably less carbon dioxide is released into the atmosphere. An installation with separation of CO_2 produces only 14 to 15 percent of carbon dioxide emissions per kilowatt-hour in comparison to a "normal" KV-Steg unit.

Demonstration Project

In his thesis, Blok advocates a Dutch demonstration project for coal gasification with CO_2 storage: "By the year 2000, several smaller natural gas fields will become available in the Netherlands. These fields could then be used for such a pilot project." In the intervening years,

scientists could, for instance, do research on the geological situation and on the risks of overpressure and leakage.

The Ministry for Housing, Physical Planning, and Environment is interested in Blok's research. The Ministry sees the storage as an additional possibility to limit the emissions of carbon dioxide, in addition to energy saving. The Ministry intends to include the results in the so-called "Global Research Package on CO_2 removal."

Industry, State Environment Spending Compared

92AN0092A Rijswijk POLYTECHNISCH WEEKBLAD in Dutch 14 Nov 91 p 7

[Unsigned report: "Government Spends More Money on Environment Than Industry"]

[Text] During the last three years, governmental and semi-governmental institutions spent about five times as much money on environmental measures than did industry. This was revealed by a survey conducted by Research and Marketing from Heerlen.

The survey "Environmental Outlines" was conducted in order to establish the extent and composition of the environmental market. It showed that in the Netherlands this market includes over 50,000 companies, (semi)governmental institutions as well as engineering bureaus and consulting agencies, which together employ some 83,000 people. As far as the companies are concerned, they are mainly involved in industrial activities, contracting, wholesale business, and professional transportation.

A striking fact revealed by the survey is that governmental and semigovernmental institutions invested much more money in environmental measures than did industry. Governmental and semi-governmental institutions (Department of Public Works, district water boards, purification boards, and public service corporations) spent an average of 1.5 million guilders a year on environmental measures, whereas industry spent only 300,000 guilders. In addition, it was revealed that government bodies, companies, and engineering bureaus invest mostly in waste measures (41 percent), followed by measures regarding water, air, soil, and noise.

More Money

Sixty-two percent of the companies, engineering bureaus, and government bodies that invested in environment over the last three years plan to spend more money on environmental measures during the period ending in 1994. On average, the increase will amount to approximately 40 percent. One-quarter of the investors are projecting the same level of investment. And of the companies and nonprofit institutions that did not invest during the last few years, 51 percent have plans to make investments during the next three years. However, 36 percent still have no investment plans at all.

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